EFOMP

EUROPEAN FEDERATION OF ORGANISATIONS FOR MEDICAL PHYSICS

EMP NEWS

ISSUE **02**

SUMMER 2026

www.efomp.org

European Medical Physics News is published by the EFOMP Communications and Publications Committee and distributed free-of-charge in electronic form.

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Editorial

Dear EMP News readers,

It is a pleasure to welcome you to this Summer 2026 issue of European Medical Physics News. As summer season brings longer days, brighter evenings and, for many of us a welcome pause from our routine, this issue invites us to focus on two important dimensions of our professional community: the excitement surrounding the preparations for ECMP 2026 in Valencia, and the human side of medical physics, reminding us that beyond our scientific and clinical responsibilities, we are also people with hobbies outside the workplace that help us develop the focus, teamwork, and balance that are essential to our profession.

Looking ahead to ECMP 2026

A major focus of this issue is the upcoming European Congress of Medical Physics, which will take place in Valencia 23–26 September 2026. This issue offers a glimpse of what awaits us in Valencia. Through the invited speaker spotlight, readers can already sense the scientific energy and diversity that will define the congress. Covering various topics, quantitative imaging, PET innovation, FLASH and spatial fractionation to MR-guided radiotherapy, dosimetry, and radionuclide therapy, the programme reflects a profession that continues to expand its horizons while remaining firmly focused on improving patient care.

The program of ECMP 2026 also remind us that the congress is not only a place where knowledge is presented, but a space where ideas meet, collaborations begin, and the future direction of our profession is actively shaped.

Science, visibility and future of medical physics

Summer is also a season that invites visibility, outreach, and engagement with the wider world. In this issue, the article Playing with the (in)visible presents a wonderful example of how medical physics can be brought closer to children, students, and the public through creative and interactive science communication. Activities such as these are important not only because they explain what we do, but because they help make our profession visible, approachable, and inspiring to the next generation.

This issue also highlights how medical physics continues to evolve in response to new technologies and responsibilities. A particularly timely example is the article on the AIFM workshop in Verona, dedicated to artificial intelligence in medical imaging. Its message is highly relevant for all of us: innovation must not only be adopted, but also critically assessed, validated, and guided with responsibility. In this changing landscape, medical physicists remain essential in ensuring that technological progress stays aligned with safety, ethics, quality, and clinical value.

The future of our profession is also reflected in this issue introducing the new Early Career SIG Steering Committee. Such innovations highlight the importance of continued EFOMP investment in education, mentorship, and professional growth. The next generation of medical physicists needs to be committed and ready not only to contribute scientifically, but also to help build an even more connected and supportive European medical physics community.

Beyond the profession

At the same time, this summer issue also offers something equally valuable: a reminder that medical physicists are not defined by work alone.

Behind every treatment plan, quality assurance test, imaging protocol, committee task and conference presentation, there are people with lives, interests and hobbies beyond the hospital and research lab. Various personal stories in this issue, from the rhythm and teamwork of sailing, to the camaraderie and release of padel, show how much our hobbies can shape the way we think, collaborate and recharge. They show how activities beyond work can strengthen qualities that also matter deeply within our profession: focus, teamwork, discipline, balance, and joy. In a field that often demands precision, responsibility, and sustained concentration, these personal spaces are not secondary but they are part of what helps us remain connected and motivated.

Taken together, the articles present a profession that is vibrant in many directions at once: scientifically ambitious, socially connected, and deeply human. I hope this summer issue brings you both inspiration and a sense of connection, to the exciting preparations towards ECMP 2026, and to the colleagues whose stories remind us that our profession is strengthened not only by knowledge and innovation, but also by the human experiences we bring to it. I look forward to meeting many of you at ECMP 2026 in Valencia.

Warm regards,

Dr Irene Polycarpou is an Associate Professor in Medical Physics and Chair of the Department of Health Sciences at European University Cyprus, with research expertise in PET and SPECT imaging and multi-modality simulation.

EFOMP President's Report

Medical Physics at the Heart of Multidisciplinary Healthcare — From Established Practice to Novel Frontiers

Traditionally, Medical Physicists and Medical Physics Experts are embedded within hospital departments of Diagnostic and Interventional Radiology, Nuclear Medicine, and Radiation Oncology. However, their expertise extends in the non ionizing fields in areas such as magnetic resonance imaging (MRI), medical lasers, radiofrequency (RF) devices, artificial optical radiation, infrared and ultraviolet (UV) sources, audiology, electrophysiological and electrosurgical devices. This is clearly stated in the revised Malaga declaration: "A Medical Physics Expert has the core knowledge, skills and competences commensurate with that of the Magnetic Resonance Safety Expert, Laser Safety Expert and MR Scientist and is required to deal with the risk assessments described in EU Directive 2013/35. The range of medical devices and physical agents used in hospitals today goes far beyond the use of ionising and non-ionising radiation based imaging and therapeutic devices, and the MPE faces requests for assistance in other areas such as advanced physiological measurements, artificial intelligence and medical nanodevices".

On the regulatory landscape, unlike ionizing radiation, which has been regulated in Europe for several decades through dedicated radiation protection legislation, non-ionizing radiation has been addressed primarily within the framework of worker protection and product safety. The Council Directive 89/391/EEC established core principles of risk assessment, protective and preventive measures, employer responsibility, reports on occupational accidents and worker training and formed the legal basis for all subsequent non-ionizing radiation (NIR) - related legislation in healthcare settings. Moreover, ICNIRP guidelines became the reference point for European legislation in combination with the standards of the International Electrotechnical Commission (IEC), the International Organization for Standardization (ISO), the recommendations of the International Commission on Illumination (CIE), the European Committee for Standardization (CEN) and the European Committee for Electrotechnical Standardization (CENELEC). Throughout the years, in parallel with occupational health and safety legislation, NIR protection in healthcare was further reinforced through Regulation (EU) 2017/745 on Medical Devices (MDR).

NIR subfields have been included in EFOMP policy activities since the very first Policy Statement [1] written in 1984, reflecting the federation's long-standing commitment to comprehensive radiation protection in medicine. Working with medical devices in MRI, physiological measurements, laser and electrosurgical practices used in the diagnostic and therapeutical spectrum necessitates an understanding of the biological effects of electricity, light, sound waves and magnetic fields on the human body. Medical Physicist training combines physics, mathematics, informatics, and medicine, thereby supporting people-oriented healthcare through collaboration between healthcare professionals, patients, caregivers, communities. An inventory of competences, knowledge and skills expected of medical physicists working in those areas are provided in the policy statements below (Table1).

In the field of non-ionising radiation protection within medical environments, although the current Eu-

Year	EFOMP Policy Statement
2012/2021	PS14/PS14.1: The role of the Medical Physicist in the management of safety within the magnetic resonance imaging environment: EFOMP recommendations.
2023	PS 17: The role and competences of medical physicists and medical physics experts in the different stages of a medical device life cycle.
2025	PS20: The role of medical physicists and medical physics experts in physiological measurement and related therapies.
In the writing process	PS21: The role of medical physicists and medical physics experts in the management of medical laser sources.

ropean landscape reveals considerable variations in regulatory frameworks and clinical implementation, we can identify significant opportunities for harmonisation of safety practices. Establishing consistent, evidence-based frameworks across countries would contribute to standardized protection of patients, public and healthcare professionals.

National Member Organisations of EFOMP are either incorporating the above subfields into their national education and training schemes or organising related educational activities, courses, workshops, and scientific events at national and regional levels. EFOMP is incorporating NIR practices in the revised curricula for Medical Physics Experts with an aim to create a Comprehensive Core Curriculum which would include all medical physics subfields.

The EFOMP Congress in Valencia will feature NIR related topics within its scientific programme and do-it-yourself-fair

- One day School on "Diagnostic and Therapeutic Ultrasound: Physics Techniques and Clinical Applications".
- An oral presentation on the status of the EFOMP Policy Statement 21: The role of the Medical Physicist and Medical Physics Expert in the management of medical laser sources
- Refresher course on Lasers and Electrophysiological Devices
- Refresher course on Medical Technology Governance under Medical Device Regulation
- EFOMP welcomes Poland "Thermal Imaging in Medicine"
- Scientific session on NIR modalities
- Do It Yourself Fair will include simple, low cost solutions to the needs of our daily work in dermatology phototherapy dosimetry, magnetic resonance elastography, MR thermometry validation.
- EFOMP-ICTP-IAEA Round table on education and training in the healthcare environment.

→Reference

Plan your itinerary to participate in the European Congress of Medical Physics (#ECMP2026) in Valencia, Spain! Your involvement, however small or large, matters and plays a crucial role in shaping the future of our profession.

https://ecmp2026.efomp.org/

Efi Koutsouveli is a Medical Physicist, Radiation Protection Expert, and Laser Safety Officer at Hygeia Hospital, Athens, Greece (since 1993). Her work focuses on radiation oncology, hospital quality management, and oncology information systems. She is EFOMP President and received the 2019 IOMP-IDMP award for promoting medical physics to a broader audience.

EFOMP Secretary General Report

EFOMP Governing Committee Updates!

Our Spring Officers Meeting was held in Tallinn, Estonia on the 25th of April. Our host NMO, Estonian Society for Biomedical Engineering and Medical Physics made sure our meeting ran without any issues. We are grateful for their hospitality shown to the EFOMP Board members. During this meeting, we discussed the objectives of the governing committee for the rest of 2026.

Figure 1. EFOMP Board members meeting in Tallinn, Estonia

Figure 2. View from Kiek in de Kök Fortification Museum, Tallinn, Estonia

European School for Medical Physics Experts (ESMPE)

The ESMPE on Advancing Breast Imaging with AI: Innovations, Applications, and Future Directions was held at the same venue in Tallinn, Estonia as the EFOMP Officers Meeting. It commenced on 23rd of April with over 90 attendees in person and online. EFOMP is very grateful to the scientific chairs and all lecturers for their work on preparing this school.

The next ESMPE 1 day schools are planned to take place at the European Congress of Medical Physics in Valencia, Spain. There are four 1 days schools covering a range of topics

- Physics, Technology and Biology in clinical proton and ion beam therapy
- Auto Planning methods for Radiotherapy
- Diagnostic and Therapeutic Ultrasound: Physics, Techniques and Clinical Applications

Figure 3. ESMPE Advanced Breast Imaging

- Radionuclide Patient Discharge following Molecular Radiotherapy
- EFOMP Workshop: Image Reconstruction for Quantitative Molecular Diagnostics & Radionuclide Therapy

You can find out more information about these schools on the ECMP website.

European Congress of Medical Physics 2026

Plans are well underway for The European Congress of Medical Physics which takes place in Valencia, Spain from 23rd to 26th of September. The number of abstracts submitted exceeded all previous records with over 1200 submitted. This meant that April was a very busy month for the ECMP scientific committee and other volunteers from our SIGs and committees who were reviewing abstracts.

This year's theme highlights the vital link between scientific discovery and the care of patients, staff, and the public. Cutting-edge technology and innovative methods are transforming modern medicine and expanding what medical physics can achieve.

The final programme for the Congress is now being finalised, and we look forward to welcoming many of our members to Valencia in September.
EFOMP Special Interest Groups

Our Special Interest Groups will meet during the Congress, so be sure to attend the Meet the SIG sessions to learn more about their work. The 2nd Early Career SIG Steering Committee has now been elected and will organise several sessions at the Congress. You can also read more about the new committee in this edition of EMP News.

Make sure to drop by the EFOMP Booth during the EFOMP Congress to meet members of the governing committee and our SIGs.

Brenda Byrne is a Principal Physicist working in the Mater Misericordiae University Hospital, Dublin, Ireland. Her primary areas of interest are diagnostic radiology, nuclear medicine and radiation protection. She has been a registered radiation protection adviser (RPA) since April 2009 and is a recognised medical physics expert (MPE). Brenda is the current Secretary General of EFOMP and Past Chair of the EFOMP Professional Matters Committee.

Physica Medica: Editor's Choice

For this summer issue of EMP News I selected the following 5 articles, recently published in Physica Medica (EJMP) which particularly attracted my attention.

S. Clarke et al. **European survey on laser safety management in medical settings** Phys. Med. 2026;143: 105755 https://doi.org/10.1016/j.ejmp.2026.105755

Although the use of lasers in medical practice continues to grow across surgical, dermatological and aesthetic applications, the regulatory and organisational framework supporting their safe use remains less developed than the one in place for ionising radiation. In this study, conducted in support of the EFOMP Working Group on Policy Statement 21, and published under the EFOMP Corner of the journal, the authors administered a 16-question survey to all 37 EFOMP National Member Organisations, gathering information from 25 countries on the regulatory framework, organisational practices, training and quality assurance arrangements for medical laser safety in Europe. The results expose considerable heterogeneity across the region: although 19 respondents were aware of national laser safety regulations, only 9 reported that a laser safety expert is normally appointed within organisations using medical lasers, only 7 indicated the presence of a local laser protection officer, and only 5 confirmed the existence of forums such as radiation safety committees to discuss laser arrangements. Training was overwhelmingly provided in-house or by manufacturers (23 respondents), while comprehensive laser safety documentation, including risk assessments and local rules, was reported in fewer than half of the responding countries. The authors emphasise that this fragmented landscape, combined with the limited number of formal incident reporting pathways, may foster the perception that laser hazards are low and slow the development of dedicated expert qualification programmes. Overall, this work provides a timely and valuable snapshot of the European situation and lays the groundwork for EFOMP Policy Statement 21, advocating for harmonised training, common core curricula and a clearer recognition of the role of the medical physics expert in laser safety.

F. De Monte et al. **Patient exposure in paediatric Interventional Cardiology: a multicenter inter-comparison of clinical practices in Italy** Phys. Med. 2026;143: 105754 https://doi.org/10.1016/j.ejmp.2026.105754

Paediatric interventional cardiology delivers substantial clinical benefit in the management of congenital heart disease, but it also exposes very young patients to ionising radiation, often repeatedly and from birth, raising well-known concerns about long-term stochastic risks. In this Italian Ministry of Health funded prospective multicentre study, the authors investigated compliance with the Image Gently Alliance dose optimisation principles and quantified inter-centre variability in patient exposure across five high-volume paediatric IC centres. Despite overall adherence to international guidelines, three non-recommended practices emerged as significantly correlated with higher patient dose: failure to remove the anti-scatter grid in children under 20 kg, excessive electronic magnification, and extensive use of cine-acquisition rather than fluoroscopy storage. Statistically significant differences in dose were observed across centres for almost all procedure types. The work clearly illustrates how equipment generation, beam-on management strategies and operator practice jointly shape paediatric exposure, and provides a robust benchmark to support harmonisation, dose monitoring and continuous optimisation in this highly specialised field.

I. Moretti et al. **Towards quantitative MRI driving online adaptive MRgRT for lung tumors** Phys. Med. 2026;142: 105731 https://doi.org/10.1016/j.ejmp.2026.105731

Lung radiotherapy remains uniquely challenging because of respiratory motion, low soft-tissue contrast and inter- and intra-fractional anatomical variability, all of which limit the precision of conventional image-guided approaches. Hybrid MR-Linac systems, by combining superior soft-tissue visualisation with real-time imaging and online plan adaptation, are progressively redefining the standard of care for both peripheral and centrally located lung lesions. In this PRISMA-based review, the authors synthesise the published clinical evidence on online MR-guided adaptive radiotherapy (online MRgART) for lung tumours and, for the first time, dedicate a focused subsection to the emerging role of quantitative MRI (qMRI) in this setting. Across the reviewed cohorts, online MRgART consistently demonstrated workflow feasibility, with frequent online adaptation, improved target coverage while respecting OAR constraints, encouraging local control rates and a low incidence of high-grade toxicity, including in centrally and ultracentrally located lesions. The qMRI section highlights how diffusion-weighted imaging and cine-MRI–derived ventilation and perfusion mapping are starting to provide early biomarkers for adaptation, toxicity prediction (notably radiation-induced pneumonitis) and treatment response, with delta-radiomics signatures already linked to locoregional outcomes. Overall, the review offers a clear and timely roadmap, identifying AI-driven motion compensation, automated segmentation and qMRI-enabled biomarkers as the natural next steps towards truly personalised online MRgART for lung cancer, and underlines the need for prospective multi-centre validation.

M. Romero-Expósito et al. **Assessing stray neutron dose variability across Monte Carlo codes in a proton therapy scenario** Phys. Med. 2026;141: 105686 https://doi.org/10.1016/j.ejmp.2025.105686

Out-of-field neutron dose remains one of the more delicate aspects of proton therapy dosimetry, particularly in light of the expanding clinical use of protons in paediatric, pregnant and re-irradiated patients, where late effects from stray radiation are of particular concern. In this work, carried out within EURADOS Working Groups 6, 9 and 11, the authors performed a comprehensive intercomparison of five widely used Monte Carlo codes (PHITS, MCNP, FLUKA, GATE and TOPAS) for a clinically realistic spread-out Bragg peak proton beam delivered to a cubic target inside a water phantom. Neutron fluence spectra and dose equivalents were evaluated at multiple in-field, forward and lateral positions, first using each code's default or recommended settings, and then exploring the impact of alternative cross-section libraries and intranuclear cascade models. While proton depth-dose distributions agreed within 2 mm across codes, neutron fluences differed by up to 130% and dose equivalents by up to 88%, depending on the chosen nuclear data. Crucially, the authors show that proton cross-sections influence the neutron spectra more strongly than neutron cross-sections, and that codes adopting comparable nuclear data libraries produce consistent results, identifying cross-section selection as a primary source of variability. Overall, this work provides Monte Carlo users with a much-needed reference for the expected spread in neutron dose calculations, reinforcing the importance of benchmarking simulations against experimental data when assessing secondary neutron exposure in modern proton therapy facilities.

A. García-Romero et al. **Guide for quality control and safety of external radiotherapy treatment planning systems and treatment plans** Phys. Med. 2026;141: 105699 https://doi.org/10.1016/j.ejmp.2025.105699

Treatment planning systems sit at the heart of modern radiotherapy, yet the quality assurance frameworks supporting them have struggled to keep pace with the spread of intensity-modulated and stereotactic techniques, paperless workflows and increasingly automated planning. In this guideline from the Spanish Society of Medical Physics, the authors propose an updated, process-oriented framework for the quality control of external radiotherapy TPS and treatment plans, moving away from isolated step-by-step tests towards integrated end-to-end (E2E) evaluations of the entire planning chain. The document is organised around the minimum equipment required, the characterisation and modelling of treatment units (with particular emphasis on multileaf collimator configuration and validation, identified as a major source of variability across centres), the establishment and periodic verification of an initial reference state of the TPS, and the quality assurance of the planning process itself, including the implementation of class solutions, the monitoring of plan complexity and robustness, and the role of dosimetry audits. A dedicated section addresses the commissioning, performance and routine use of treatment plan verification systems, with explicit recommendations for tolerances structured into three levels: comparison of simple and complex calculated versus measured fields, periodic E2E and post-update tests, and pre-treatment patient-specific plan verifications. The authors also tackle emerging needs related to automation and online adaptive workflows, where conventional pre-treatment measurements are no longer feasible. Overall, this guideline offers a practical and harmonised reference that should help reduce variability and enhance the reliability and safety of TPS-based dose calculations in clinical practice.

Iuliana Toma-Dasu, Editor-in-Chief of Physics Medica – European Journal of Medical Physics.

Where Physics Meets the Wind

Some of the most important lessons I learned about physics did not come from a classroom, but from the sea.

I came to sailing relatively late, during my university years, without the traditional path behind me. Instead of learning in small boats as a child, I stepped directly onto keelboats and into an experience that would soon grow far beyond anything I had imagined.

Sailing was not just a sport. It was something I felt intellectually, physically, and emotionally.

As a physics student, I became fascinated by how directly the laws I studied came alive at sea. Wind was no longer an abstract vector; it had force, unpredictability, and character. Balance was not just an equation, but a constant negotiation between elements like sail trim, boat angle, shifting weight. Every movement had consequences. Every adjustment had feedback.

Figure 1. Hiking to keep speed and balance

But beyond physics, there was something else, a strong connection with nature.

The sea, the wind, the sun demand presence. You cannot rush them, and you cannot control them. You can only learn to read them, adapt, and respond.

That lesson stayed with me.

Soon, sailing became more than a passion; it became a way of life. While finishing my studies, I spent my summers working as a sailing instructor on the island of Murter, one of the most beautiful parts of the Croatian archipelago. Days were long, filled with teaching, wind, salt, and sunburnt faces, but also laughter, growth, and a shared sense of purpose.

Those summers shaped me in ways no classroom ever could.

The rest of the year, I competed in regattas. Sailing took me far beyond familiar shores, to Italy, Greece, Montenegro, Turkey and Romania, and into experiences that were sometimes challenging, sometimes chaotic, and often unforgettable. I sailed in women's crews, mixed teams, and double-handed races (with just two sailors on board), each with its own dynamics, demands, and lessons.

Sailing taught me about teamwork. Not the theoretical kind, but the kind where communication must be immediate, trust comes naturally, and mistakes are simply part of learning and moving forward.

It also taught me how to deal with uncertainty.

At sea, conditions change constantly. You plan, but you must also adapt. You prepare, but you must also let go. That balance, between control and acceptance, became one of the most valuable lessons I carried into my professional life.

In 2018, I started working in a hospital, and around the same time, my life shifted again with the arrival of children. My time at sea became more limited. Long regattas and entire seasons dedicated to sailing were no longer possible in the same way.

But sailing never really left.

I found ways to keep it in my life, in forms that fit this new chapter. The Croatian Melges 24 Cup became my main connection to competitive sailing, a series that represents, in my view, the best of sailing in Croatia today. International crews, top-level sailors, and a one-design class where everyone races on identical boats. In such conditions, there are no technical advantages, only skill, decision-making, boat handling, and the ability to read the wind and the racecourse make the difference.

Figure 2. A moment of speed, focus, and teamwork

It is pure sailing.

Another race close to my heart is Sušac 100×2, a double-handed offshore challenge starting from Split, circling the remote island of Sušac, and covering 100 nautical miles day and night. Just two people, the boat, and the elements. It is intense, demanding, and deeply rewarding, a distilled version of everything sailing is about.

Figure 3. Rounding Sušac — miles ahead, just the two of us

Today, sailing also has a new meaning in my life. I want to pass that love on to my children.

We take them to regattas, letting them slowly become part of the process, preparing the boat, observing, and feeling the atmosphere of competition and teamwork. Our summers are spent on a small 7.5-meter sailboat, which, to me, feels like the most natural and valuable way for them to grow up, close to the sea, to each other, and to a slower rhythm of life.

Some of our most beautiful adventures have happened on that small boat, discovering hidden coves, quiet bays, and distant lighthouses, far from the rush of everyday life.

Figure 4. Evening calm in a bay on the island of Brač

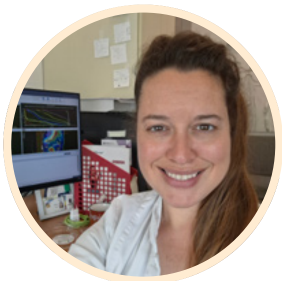
Sailing has given me far more than I could have anticipated, not only the challenge of mastering a new sport, but also a broader perspective on life. It has taken me along the most beautiful parts of our Adriatic coast, introduced me to the richness of Mediterranean culture and cuisine, and connected me with people and places I would never have encountered otherwise.

It shaped how I think as a physicist, grounding theory in intuition. It shaped how I work, staying calm under pressure, adapting to uncertainty, and trusting both preparation and instinct. And perhaps most importantly, it shaped how I relate to people, understanding that, like the wind, we are all constantly changing, and that good communication, patience, and balance are everything.

I also feel incredibly fortunate to sail along the Adriatic coast, a place of exceptional natural beauty, with countless islands, shifting winds, and ever-changing light. Over the years, I have had the chance to sail along much of this coastline, discovering its diversity one bay, one channel, one regatta at a time.

It is a rare privilege to live and sail in an environment where conditions are both challenging and ideal, and where the connection between nature and sailing feels so immediate and authentic.

Figure 5. Where crystal-clear sea meets the green landscapes of Pelješac



Lamjana Jurčec is a Medical physicist from Croatia, working at University Hospital Centre Zagreb since 2018. Sailing since 2010. Living in Zagreb, with her heart at sea.

EFOMP friends at ESTRO 2026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From Physics to Padel: A Weekly Escape

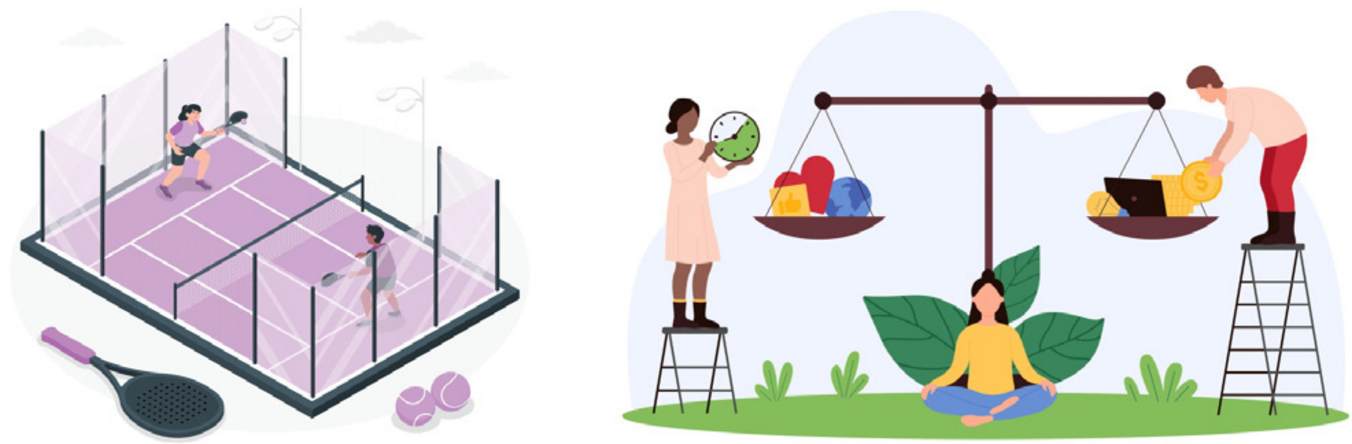


Figure 1. Illustration representing the balance between professional responsibilities and leisure activities such as padel.

In medical physics, as in many healthcare professions, much of our daily work involves precision, responsibility, and constant attention to detail. Whether in radiation protection, diagnostic imaging, or nuclear medicine, our jobs can be mentally demanding, so finding ways to unwind and recharge outside work is essential. For many of us in our group, padel has become one of the best ways to do exactly that.

We started playing relatively recently, after a casual suggestion among colleagues who were curious to try the sport or keen to get back into it after some time away. What began as an occasional idea for exercise quickly turned into a regular and eagerly awaited weekly event.

Although the original initiative came from nuclear medicine staff, the group soon grew into something more multidisciplinary, with colleagues from medical physics and other areas of the hospital joining in. One of the nicest things about it is precisely this mix of people. On the padel court, job titles and departmental boundaries disappear for a while, and everyone is simply there to play, compete, and enjoy themselves together.

We usually play once a week after work, which has turned out to be the perfect rhythm. It is frequent enough to become part of the routine but relaxed enough not to feel like another obligation in already busy schedules. For many of us, it has become a small weekly ritual and a great way to mentally mark the end of the working day.

One of the great advantages of padel is how easy it is to pick up. Unlike some sports that can feel intimidating for beginners, padel is accessible to people of different ages and fitness levels, and most players can start enjoying it almost immediately. That has helped make it welcoming for everyone, even those who may not normally think of themselves as particularly sporty.

Beyond the physical benefits, the mental side is just as important. Hospital work can be stressful, and medical physics is certainly no exception. Having something active, social, and completely unrelated to work offers a valuable reset. For one and a half hours, instead of thinking about patients, protocols, regulations, or equipment performance, we focus on rallies, tactics, and the occasional heated discussion about whether a ball was in or out.

The social aspect has also been incredibly valuable. Playing together has strengthened relationships in ways that everyday workplace interactions often cannot. It creates camaraderie, trust, and shared experiences that naturally carry back into professional life. Spending time together outside the usual clinical environment helps us know each other not only as colleagues, but as people.

And of course, no amateur sporting group would be complete without its share of comedy. Over time, we have accumulated plenty of inside jokes, friendly rivalries, overly enthusiastic celebrations, and deeply avoidable mistakes. There have also been occasional mishaps, from dramatic lunges ending in sprained ankles and several months off the court (in my case), to those unfortunate moments when an enthusiastic shot accidentally heads toward a dear teammate or opponent instead of the intended direction.

In the end, padel has become much more than just a form of exercise for our group. It is a way to relax, laugh, stay active, and spend time together outside the hospital setting. More than anything, it reminds us that beyond the technical and scientific roles we carry out every day, we are also simply people and friends who enjoy each other's company.

João Santos received M.Sc. and Ph.D. degrees in Physics, specializing in optoelectronics, lasers, and condensed matter. He is a Medical Physicist Expert and Coordinator of the Medical Physics, Radiobiology and Radiation Protection Group at the IPOPFG Research Centre, and an Affiliated Professor at the University of Porto.

Meet the Designer Behind EFOMP's Visual Identity

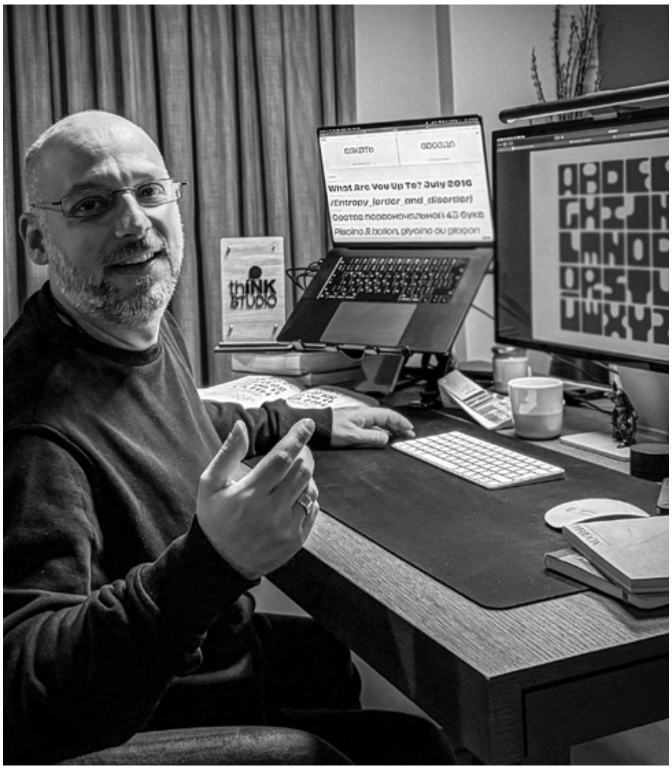


Figure 1. George Kassalias at Think Studio Athens

Behind every publication, conference banner, and visual element of EFOMP is a creative process that often goes unseen. Over the past several years, EFOMP's brand image has evolved significantly, from the redesign of EMP News to the development of a more unified and modern presence across its various branches and activities. Behind this work is George Kassalias, the designer responsible for shaping and guiding EFOMP's visual identity. Through his work, EFOMP has gained a stronger and more consistent visual presence across the European medical physics community. In this interview, we speak with George about his journey into graphic design, the creative process behind his work, and the role of design in supporting and communicating EFOMP's mission.

About George Kassalias

George Kassalias is a graphic designer and art director with more than 20 years of experience in branding, visual communication, and editorial design. He is the founder and creative director of Think Studio, a creative agency based in Athens. Since 2018, George has collaborated with EFOMP, contributing to the organisation's branding, publications, and communication design.

Can you tell us a bit about yourself and your journey into graphic design?

I started studying Graphic Design in Athens in 1998, straight out of school — so design has really been my world from a very early age. I then went on to complete a Master's in Visual Communication and Interactive Media at the University of Derby in 2003, which pushed my thinking beyond aesthetics and into the deeper relationship between concept, communication and audience. But honestly, my connection to this field goes back even further than my education. My father was a typographer, and I literally grew up in a print shop — playing with paper, handling type, absorbing the craft without even realising it. I think that gave me an intuitive understanding of typography and visual language that's very hard to learn in a classroom. It's just part of how I see the world.

That background shapes everything I do today. I bring a genuine passion to every project — not just for how things look, but for how they work and what they communicate. I'm a natural collaborator; I think the best creative work always comes out of strong teams where ideas are challenged

Figure 2,3,4. EFOMP Brand Manual — logo variations, color palette and positioning guidelines.

and refined together. And I'd describe myself as a problem solver at heart — someone who doesn't just execute a brief, but questions it, pushes it, and finds solutions that go beyond the expected.

When did you join EFOMP, and what does your role within the organization involve?

My collaboration with EFOMP began around 2018, initially with fairly focused deliverables — posters and roll-up banners for their events. But the relationship grew significantly from there, and what started as project-based work evolved into a long-term art direction partnership that has now spanned over six years.

Today, my role covers all aspects of EFOMP's visual presence. One of the most significant undertakings was a comprehensive rebranding — redesigning their logo and developing a com-

Figure 5. EFOMP — digital display adaptations showcasing the visual identity system across multiple colour palettes, maintaining brand consistency and recognition at every touchpoint.

plete brand manual that extended across all of EFOMP's branches, including EEB, ECMP, EFOMP You, and ESMPE. The goal was to establish a cohesive visual identity that could be consistently applied across Europe by members, collaborating organisations, and institutions alike.

Beyond the branding work, I handle a wide range of ongoing design applications — corporate identity materials, promotional posters, billboards, quarterly publications like EMP News, Core Curriculum publications, educational documents, and digital content. It's a relationship built on trust and a shared commitment to quality, and I'm proud that it continues to grow.

How would you describe your design style, and has it evolved over time?

My style lives at the intersection of clarity and expression. I'm drawn to work that strips away the unnecessary and lets the essential idea breathe — but that doesn't mean cold or minimal. It means every element earns its place. Whether I'm designing a logo for a logistics company like Athinaiki or art-directing the visual identity for Release Athens Festival, I want the result to feel both inevitable and alive.

In terms of evolution — when I started out in advertising agencies, my instinct was to solve the brief. What's changed over the years, and especially since founding Think Studio in 2015, is that I now start further back. I question the brief first. I ask what the brand is really trying to say, who it's talking to, and what would make someone stop. That shift — from problem-solver to strategic thinker who also designs — has been the biggest evolution.

The range of clients has shaped my style too. Working across sectors as different as medical physics (EFOMP), live music (Floyd, Release Athens), and hospitality (Cozy Coffee, Salvador) — but also more corporate environments like CERS Group and Thesis Brokers — has forced me to be genuinely versatile rather than just applying the same aesthetic to every project. Each context demands its own visual language.

"What remains consistent is the rigour behind the decisions, the attention to detail, the belief that design is not decoration, but communication."

Many readers see the final result, but not the process; can you take us behind the scenes of how each EMP News issue is created and produced?

Figure 6,7. EMP News — Some of the latest issue covers and editorial layout design.

Each issue of EMP News follows a process that balances editorial structure with creative flexibility. It typically begins with receiving all the articles and assets from the editors — understanding the key themes, content priorities, and what material I have to work with for that particular issue. From there, I establish the editorial layout: how many pages, what the content hierarchy looks like, which stories need visual emphasis and which ones are more text-driven.

The design work itself starts with the grid. A consistent typographic and layout grid is essential for a publication like this — it gives each issue coherence and makes it instantly recognisable, while still leaving room to vary the visual treatment from article to article. Typography, colour, and white space do a lot of the heavy lifting.

Then comes the content integration phase — working with the actual text and imagery, adjusting layouts as the real content inevitably differs from the placeholder, making sure everything reads clearly and flows naturally from page to page. This is where the detail work happens: fine-tuning type sizes, checking visual balance across spreads, ensuring the cover has enough impact to draw the reader in.

Finally, the issue is exported as a PDF and delivered to the editors — clean, consistent, and ready to be distributed to EFOMP's audience across Europe.

In your view, how does good design support and communicate EFOMP's mission?

EFOMP's mission is fundamentally about advancing medical physics across Europe — raising standards, sharing knowledge, and connecting a professional community that spans many different countries and institutions. That's a complex set of ideas to communicate, and design plays a quiet but essential role in making them land.

“At the most basic level, a consistent and professional visual identity signals credibility. When a scientist or institution encounters EFOMP materials, whether it's a Core Curriculum publication, a conference poster, or an issue of EMP News, the design needs to immediately convey that this is an organisation of authority and rigour. In a scientific field, trust is everything, and visual consistency builds that trust over time.”

But good design for EFOMP goes beyond looking professional. It's about making complex, dense content accessible. Medical physics is a highly specialised discipline, and a lot of the material EFOMP produces is technical by nature. Typography, layout, and visual hierarchy are the tools that guide the reader through that complexity — deciding what they see first, what they linger on, and what they take away. A well-designed page doesn't just look good; it makes the content easier to absorb.

There's also the dimension of community and identity. EFOMP brings together professionals from across Europe under a shared banner, and design reinforces that sense of belonging. When every branch including ESMPE, ECMP, and EFOMP You share a coherent visual language, it signals unity of purpose. Design, in that sense, isn't just communication. It's culture.

What has been the most challenging aspect of your design work for EFOMP, and how did you approach it?

Every project comes with its own challenges, but if I had to single out one, the rebranding was by far the most demanding undertaking in our collaboration.

EFOMP is not a single entity — it's an umbrella organisation with multiple branches, each with its own identity and audience. Redesigning the logo and developing a brand manual that would work coherently across EFOMP, EEB, ECMP, EFOMP You, and ESMPE meant that every decision had to function both independently and as part of a larger whole. That kind of systemic thinking is significantly more complex than designing for a single brand.

Figure 8,9. EFOMP YOU logo adapted on t-shirt and ESMPE Hybrid Schools promotional flyer design.

The challenge wasn't just visual — it was also or-

Figure 10. Logo design for ECMP and EEB, maintaining visual consistency through the same visual language as the EFOMP logo.

ganisational. A federation of this scale involves multiple stakeholders across different countries, each with their own expectations and preferences. Keeping the vision consistent while navigating that level of input required a lot of patience, clear communication, and a willingness to iterate without losing sight of the core concept.

My approach was to anchor everything in a strong, flexible visual system from the start. If the foundations — the colour palette, the typography, the core logo logic — were solid enough, then adapting them across branches and touchpoints became a matter of application rather than reinvention. That framework is ultimately what made the rebrand sustainable; it gave EFOMP a visual language they could own and grow with, rather than something that would need to be redesigned every few years.

At the beginning of 2024, EMP News underwent a major redesign; can you walk us through the idea behind it and what changed?

At the start of 2024, we felt it was the right moment to take a step back and rethink EMP News from the ground up. The publication had been running for some time and, while it was doing its job, the design needed to evolve to better serve its readers and reflect the growing stature of EFOMP as an organisation.

The core idea behind the redesign was clarity. Scientific content is inherently dense, and our goal was to create a layout that made the reading experience feel less like work. That meant introducing a cleaner, more structured grid — one that gave the content more room to breathe, established a clearer hierarchy between headlines, body text, and supporting elements, and made it easier for the reader to navigate through the issue.

Typography was revisited to improve legibility, and the overall visual language was refreshed to feel more contemporary — lighter, more open, and more confident. The result is a publication that looks and feels more modern without losing the authority and professionalism that EFOMP's audience expects.

“Ultimately, a redesign like this isn't about change for its own sake. It's about making sure the design continues to serve the content and the reader as effectively as possible. When someone opens EMP News, the design should be invisible; what they should notice is how easy and engaging it is to read.”

Working closely with EFOMP, have you gained new insights into the field of medical physics?

Ha! Well, that’s a fun question. Working on each issue of EMP News means I inevitably find myself reading through articles, studies, and imagery that I wouldn't otherwise encounter, and I do follow it all with genuine curiosity. It's hard not to be drawn in.

That said, I wouldn't claim to have gained real insight into medical physics as a discipline. It's a highly specialised field that requires years of dedicated study, and it's a very different world from graphic design. I have a deep respect for the expertise involved, which is precisely why I'm careful not to overstate what I take away from it.

What I do notice — and find genuinely fascinating — is the pace of technological evolution within the field. Issue after issue, you can see how new and continuously advancing technologies are reshaping what medical physicists do and what they're able to achieve. That constant progression is something that comes through clearly in the content, and it's actually quite inspiring to observe from the outside — even as someone whose job is simply to present that content as clearly and compellingly as possible.

"In a way, it mirrors what happens in design too. The tools evolve, the possibilities expand, and you have to keep moving forward. So perhaps there's more common ground between our two fields than it might first appear."

Looking ahead, what developments or changes can we expect in EFOMP's visual identity, website, or publications?

The immediate priority is consistency — continuing to strengthen and apply EFOMP's visual identity coherently across all levels of communication. A strong brand isn't built in a single project; it's reinforced through every touchpoint, every publication, every piece of collateral. That disciplined, consistent approach remains the foundation of everything we do.

On the website front, a redesign is already in the works. The new site will have a cleaner, more structured architecture that reflects the standards of modern web communication — better organised, more intuitive to navigate, and fully responsive across all devices. The goal is a digital presence that matches the authority and professionalism of EFOMP as an organisation, while also feeling fresh and accessible to a contemporary audience.

And I'll leave a small hint here — alongside the website, there are some design surprises in the pipeline that EFOMP members will be able to make use of. Some of these are expected to arrive later in 2026, with more potentially following in 2027. I don't want to give too much away just yet, but there's a lot to look forward to.

George Kassalias
Art director and designer of EFOMP.

Explore more of George's work at www.thinkstudio.gr

Antonio Jreije is a Medical Physicist at Vilnius University Hospital Santaros Klinikos and Secretary of EFOMP's Communications & Publications Committee. He conducted the interview.

Discover ECMP 2026: Join Europe's Premier Medical Physics Congress in Valencia

The European Federation of Organisations for Medical Physics organizes the European Congress of Medical Physics (ECMP) every two years as its flagship scientific event. It rotates among different European host countries and is typically organized in partnership with the National Medical Physics Association while in some cases regional societies also participate jointly in its organization. Its main purpose is the advancement and dissemination of medical physics technology and knowledge, and the promotion of the medical physics profession in Europe and worldwide. This year the Congress will be hosted by the Spanish Society of Medical Physics (SEFM) and will take place from September 23-26 in Valencia, Spain. (ECMP26)

The theme chosen for this edition of the Congress is "Advancing Healthcare through Physics: Bridging Science and Patient Care for a Sustainable Future". This theme represents a critical intersection of scientific discovery and patient, staff and public care, where cutting-edge technology and innovative methods are reshaping the landscape of modern medicine and expanding its horizons. At its core, the integration of physics into healthcare improves diagnostic accuracy, treatment efficacy, safety, and overall patient outcomes across the healthcare spectrum. Medical imaging technologies such as X-ray, CT, MRI, US, PET are prime examples of how physics has revolutionized the way healthcare professionals visualize the human body and pushed the boundaries of what is possible to achieve.

Efi Koutsouveli (President of EFOMP and ECMP2026), ECMP2026 Scientific Chairs (Joao Seco and Jose Perez Calatayud), together with all the Congress Planning and Scientific Committees and our dynamic Early Career Community, are designing a comprehensive and future focused scientific programme. Topics will highlight energy-efficient medical technologies, telemedicine, artificial intelligence driven clinical solutions and concerns. These leading-edge innovations streamline healthcare delivery by reducing waste, optimizing resource allocation, and ultimately paving the way for a sustainable healthcare system for all that meets the needs of current and future generations while ensuring high-quality, human-centered care around the world and beyond.

More than 1200 abstracts have been received for evaluation, covering a wide range of areas that reflect the multidisciplinary nature of medical physics, as well as important emerging lines of research with significant current and near-future impact. These areas include: Radiotherapy, Diagnostic and therapeutic nuclear medicine, Diagnostic and Interventional Radiology - Medical Imaging, MRI and other Non-ionizing modalities including audiology and lasers, Radiation Protection and Dosimetry, Innovative Therapy Techniques, Novel Imaging Approaches and Technologies, Theragnostic, Radiobiology, Biomedical engineering, Informatics and Data Science, Artificial Intelligence and Imaging Biomarkers, Education and Training, Professional issues, Sustainable practices in healthcare and Do It Yourself (DIY) Fair.

At ECMP26, we were fortunate to have a spectacular lineup of invited speakers, whose participation we gratefully acknowledge (D. Dobbe-Kalkman, X. Jia, S. Psoroulas, L. Altabella, L. Beaulieu, D. Mihailidis, A. Bertolet, M. Ladd, I. Toma-Dasu, and I. Torres-Espallardo). Their presentations cover a wide range of highly relevant topics, both in scientific developments and for the profession. Topics such as AI, Flash, workflow automation, radiobiology, dosimetry, radionuclide therapy, MRI and PET advances were the focus of their presentations, which also offered the opportunity for fruitful discussions with the attendees.

On the first day of the Congress, several courses from the EFOMP School, chaired by João Seco, will be held, led and taught by leading experts. This year's courses will cover Proton Therapy (in line with the significant implementation plan in several countries), Auto-planning, Ultrasound, and Molecular Radiotherapy. A workshop on Imaging in Molecular & Radionuclide Therapy is also scheduled alongside the courses.

The format and distribution of sessions at the congress follow the configuration of recent EFOMP congresses, spread across five parallel rooms. Alongside the Scientific Sessions, where the highest-rated papers will be presented, highlights include refresher courses at the beginning of the sessions and special sessions from the EFOMP's Special Interest and Early Career Groups. Of particular note are the Intersect and Joint Sessions, in which various societies, together with EFOMP, address a current topic with shared components, featuring presentations by renowned figures from the participating societies. Also noteworthy are the traditional DIY sessions, which have been so well received for their interest and usefulness in previous editions.

The posters will be presented entirely electronically, with a sufficient number of screens to facilitate viewing. A selection of outstanding posters will be the subject of special discussions, with appropriate time and space allocated to facilitate their presentation and discussion by interested attenders.

ECMP26 will be hosted by the Spanish Society of Medical Physics (SEFM) and its President Maruxa Pérez Fernández in Valencia. The city earned the European Green Capital 2024 title due to its past and current achievements in the field of sustainable tourism, climate neutrality, as well as fair

Figure 2. ECMP 2026 venue, Valencia Conference Center (Palacio de Congresos de Valencia).

and inclusive green transition. Valencia has been centering its activities around building a friendlier city for future generations and offers a perfect blend of vibrant urban life, traditional Mediterranean flavors, and a rich cultural heritage.

Since its foundation in 1980, EFOMP has championed the value of friendship and international collaboration. In the spirit of looking beyond national borders, ECMP26 welcomes in Valencia the Polish Society of Medical Physics (PTFM) and its President Tomasz Piotrowski.

Alongside the scientific activities of the congress, social activities have been organized to complement the scientific and professional enrichment with the enjoyment of the stay, discovering cultural aspects of Spain and Valencia. In addition to the gala dinner to be held in the impressive modernist City of Arts and Sciences, a party with a giant paella on the beach at sunset is planned, which we hope will be enjoyed by all attendees and their families.

Join us in Valencia, to align our efforts toward building a biocentric and sustainable healthcare system that is more precise, accessible, compassionate, and resilient in an increasingly complex and rapidly changing world.

https://ecmp2026.efomp.org/

Jose Perez-Calatayud and Joao Seco
Joint Chairs of ECMP 2026 Scientific Committee
ECMP 2026 Organizing Committee
European Congress of Medical Physics 2026

Invited Speakers Spotlight

Dear colleagues, the date for the European Congress of Medical Physics, to be held in Valencia, Spain, from September 23-26 of this year, is fast approaching. The organizing team is very proud and excited about the impressive lineup of excellent guest speakers who will be featured at this 6^{th} ECMP 2026 meeting.

In the previous issue of this magazine, in EMP News Issue 01 Spring 2026, the figures and presentations of the invited speakers confirmed at that time were highlighted: Dr. Xun Jia, Dr. Luc Beaulieu, and Dr. Danielle Dobbe-Kalman, with their important lectures on: “Building intelligence in radiotherapy treatment planning”, “Automation of brachytherapy workflow: recent advances and implementations” and “How to make your presentation radiant” respectively.

Currently, the importance of the group of invited speakers has been further increased with the inclusion of new figures in the different fields of medical physics, making this group a very high-level selection that will give enormous prestige to the 6^{th} ECMP2026 event. Next, we will present a brief overview of them and their conference topics.

DR. SERENA PSOROULAS

She is a medical physicist and senior scientist from Switzerland. Her core expertise is in beam delivery, applied to photon C-arm linacs and proton gantries. Her research activities focus on clinical implementation of new radiobiological concepts in clinical practice, focusing on spatially fractionated radiotherapy and ultra-high dose rates treatments (FLASH irradiations). She loves working alongside clinicians, biologists and technicians, and with them trying to test the limits of conventional concepts. She also has expertise in innovative treatments for motion mitigation and treatments of moving tumors with protons.

The topic of her session is “Technology meets biology: dose rates and FLASH – precision and spatial fractionation”. Technology development in radiotherapy has given us tremendous advances in precision and accuracy. However, for curious minds such as physicists’, the next challenge already approaches: can we improve treatment outcomes using biological effects? Preclinical experiments show remarkable results in terms of normal tissue sparing and improvements of tumor control, using techniques such as FLASH and spatial fractionation (SFRT). Moving them to the clinic however requires additional effort – not only from the technology development. Dr Serena Psoroulas will review in this presentation her experience in implementing FLASH and SFRT in clinical practice, highlighting the challenges still awaiting in this field.

DR. LUISA ALTABELLA

She is Senior Medical Physicist specializing in Quantitative MRI and MR-Guided Adaptive Radiotherapy. AOUI Verona. She completed her studies in Medical Physics in 2015, following research at Italian National Institute of Health focused on preclinical MR imaging. Since then, she has specialized in quantitative MRI for clinical body and neuro applications. She has also gained significant experience in radiotherapy, mainly in imaging application in RT and adaptive radiotherapy. She is currently responsible for the medical physics aspects of the MRI-Linac recently installed in their institution. She has authored over 30 peer-reviewed publications, coordinated the AIFM-Working Group on MRI Quantification, and served as Scientific Chair for the 2024 EFOMP-AIFM course on Quantitative MRI.

The topic of her session is "MR – guided radiotherapy: from adaptive to biological optimization Magnetic". Resonance-guided radiotherapy (MRgRT) has transitioned from conventional inter-fractional adjustments to real-time online adaptive radiotherapy, enhancing dose escalation and healthy tissue sparing. The current frontier, biological optimization, leverages functional MRI to map tumor heterogeneity and metabolic response. Central to this paradigm are Quantitative Imaging Biomarkers (QIB); however, their clinical utility depends on rigorous standardization. Without cross-platform reproducibility and validated acquisition protocols, biological data remains prone to inter-vendor variability. Establishing standardized QIBs is essential to move MRgRT from purely anatomical adaptation toward.

DR. DIMITRIS N. MIHAILIDIS

He has PhD, FAAPM, FACMP, FASTRO. Is an experienced medical physicist dedicated to advancing education, clinical practice, and professional standards. Board certified by both the American Board of Medical Physics (ABMP) and the American Board of Radiology (ABR), he serves as Director of the Medical Physics Graduate Programs at the University of Pennsylvania, where he has modernized curricula, taught core graduate courses, and supported the development of more than 25 medical physics residents and numerous graduate students. His national service includes work as an ABR Oral Examiner, exam item writer, and contributor to credentialing committees. Internationally, he has many invited talks, presentations and teaching courses in meetings, congresses and symposia. He has led several major AAPM Task Groups in dosimetry, quality assurance, dental CBCT, and patient management, and has organized educational and scientific sessions at national and international meetings. His scholarly contributions include co-authoring key textbooks, IAEA training chapters, and more than 100 peer-reviewed publications. A Fellow of AAPM, ACMP, and ASTRO and recipient of the ABR Volunteer Service Award, he also serves on the AAPM Board of Directors, helping guide the future of medical physics education.

The topic of his session is "Radiation dosimetry in clinical practice: Challenges and new horizons". Accurate and robust radiation dosimetry is a cornerstone of clinical practice, supporting progress in radiobiological research, radiation therapy, diagnostic imaging, and nuclear medicine. In radiobiological experiments, reliable dose measurement is essential for establishing reproducible dose–response relationships and enabling meaningful biological interpretation and translation to the clinic. In radiation therapy clinical trials, dosimetric accuracy, consistency, and inter-institutional comparability are critical for treatment standardization, outcome assessment, and patient safety. Similarly, in diagnostic imaging, accurate patient dose estimation underpins optimization strategies aimed at balancing image quality with radiation risk. In the field of radiopharmaceuticals, precise activity calibration and organ dose calculations are fundamental for therapy planning, toxicity assessment, and regulatory compliance. Central to all these applications is robust reference dosimetry with traceability to national and international measurement standards, ensuring accuracy, reproducibility, and confidence across institutions and technologies. Despite advances in detector systems, computational methods, and hybrid imaging and therapy techniques, significant challenges remain due to complex radiation fields, patient-specific variability, and evolving clinical workflows. His review discusses current challenges in clinical dosimetry and highlights emerging technologies and methodologies that define new horizons in precision and personalized radiation medicine.

DR. ALEJANDRO BERTORET

He is Director of Radiopharmaceutical Dosimetry at Massachusetts General Hospital and an Assistant Professor at Harvard Medical School. He conducts NIH-funded research on physical and radiobiological aspects of theranostics, with special focus on both radiopharmaceutical therapy and transarterial radioembolization. His research focuses on computational and image-based dosimetry for radiopharmaceutical therapy, with emphasis on targeted alpha therapy, microdosimetry, and radiobiological modeling. He develops Monte Carlo-based and mechanistic models to link radiation transport, DNA damage, and biological response.

The topic of his session is "Subatomic Strike: The Future of Cancer Treatments with Radionuclides Therapy". Radionuclide therapy is experiencing rapid growth driven by agents such as Lu-177-PSMA-617 and Y-90 microspheres, yet clinical dosimetry and treatment optimization remain largely empirical. This lecture covers emerging approaches that aim to close this gap. He will present probabilistic frameworks that enable practical single-timepoint dosimetry through Bayesian inference on population pharmacokinetic data. Second, he will show mechanistic models of microsphere transport and deposition in liver vasculature for predictive, optimization-driven treatment planning for radioembolization. Finally, he will discuss how track-structure microdosimetry can connect physical dose to biological effect across different radionuclides, including alpha emitters, informing rational isotope selection and combination strategies.

DR. MARK E. LADD

He is Professor at Heidelberg University and Head of Medical Physics in Radiology at the German Cancer Research Center (DKFZ) in Heidelberg. He is also affiliated as a Principal Investigator of the Erwin L. Hahn Institute for MRI at the University of Duisburg-Essen, Germany. Mark grew up in the USA and studied electrical engineering at the University of Michigan, Ann Arbor, and Stanford University, California, where he received a Bachelor of Science in 1989 and a Master of Science in 1991, respectively. While working in the medical imaging industry for General Electric, he completed his PhD at the Swiss Federal Institute of Technology (ETH Zurich) in 1998. His research focuses on methodological advances in MR imaging and spectroscopy, including imaging at ultra-high magnetic fields, radiofrequency hardware, parallel transmission, MRI safety, and magnetic resonance-guided radiotherapy. He is author or co-author of more than 350 scientific articles involving the application and improvement of MR technology.

The topic of his session is "Novel MRI Applications Enabled by Magnet Design". The heart of any MRI system is the magnet. This is also typically the costliest component of the overall system. Whereas typical clinical systems in the field strength range 1.5 to 3 Tesla are based on cylindrical magnets made up of superconducting niobium-titanium wire, new applications are emerging that will be enabled by unconventional magnet designs. These applications include low-field permanent magnets that dramatically lower cost and are expected to promote more widespread use in resource-poor locations or provide point-of-care solutions in established healthcare systems. Or new magnet geometries that improve patient access and facilitate interventional procedures guided by MRI. They also include very high field magnets that substantially increase the sensitivity of the MR experiment and open up new potential for capturing metabolic information. This talk will look at the basics of magnet design and how new approaches seek to enable novel MRI applications.

DR. IULIANA TOMA-DASU

She is Professor in Medical Radiation Physics and the Head of the Medical Radiation Physics division at the Department of Physics, Stockholm University, affiliated to the Department of Oncology and Pathology at Karolinska Institutet in Stockholm, Sweden, and the Editor in Chief of Physica Medica – European Journal of Medical Physics. She studied Medical Physics at Umeå University, Sweden, where she also became a certified medical physicist and received a Ph.D. degree. In parallel with her involvement in the educational program for the medical physicists run at Stockholm University, her main research interests focus on biologically optimised adaptive radiation therapy, including particle therapy, modelling the tumour microenvironment and the risks from radiotherapy.

The topic of her session is "Radiobiology Across Medical Physics: Linking Mechanisms, Models, and Clinical Practice". Radiobiology underpins a broad range of medical physics applications, extending well beyond its traditional association with radiotherapy. Fundamental processes such as DNA damage, repair, and dose-response relationships remain central to understanding and optimizing advanced treatments, including proton and heavy ion therapy, FLASH irradiation, and biologically guided planning. At the same time, radiobiological principles are critical in diagnostic imaging and radiation protection, particularly in assessing low-dose effects and stochastic risk. Recent developments in computational modelling, artificial intelligence, and systems biology are enabling a more integrated and quantitative use of radiobiology, supporting the transition toward personalized and biologically informed clinical practice. By connecting molecular mechanisms with clinical outcomes and population-level risk, radiobiology provides a unifying framework that continues to drive innovation across medical physics.

DR. IRENE TORRES-ESPALLARDO

She is Senior Medical Physicist dedicated to Nuclear Medicine, Clinical Area of Medical Imaging, Hospital Universitario y Politécnico La Fe, Valencia (Spain). She is a certified medical physicist with over 25 years of experience in the field of medical physics, primarily dedicated to addressing the clinical needs of the Nuclear Medicine Department. Her research career has focused on the development of PET prototypes, corrections for quantitative imaging, and the optimization of acquisition protocols in molecular imaging. Her PhD was focused on image reconstruction for a small animal PET scanner (MADPET-II). She took part of the European ENVISION Project, dedicated to the development of the quality assurance tools for hadron therapy by means of PET and Compton Camera. More recently, her work has expanded to improving the accuracy of dosimetric calculations in radionuclide therapies within theranostic procedures, with the aim of advancing personalized medicine in clinical practice. Within the Nuclear Medicine Department of the Medical Imaging Clinical Area, Dr. Torres-Espallardo has coordinated the clinical validation of several prototypes, including PROSPET and CareMiBrain. She is currently involved in the evaluation of emerging technologies such as IMAS (total-body PET) and Helmet (a dedicated brain PET system). She is also a key participant in the European project AIDER (EURATOM programme), which aims to develop a specialized imaging tool based on Compton camera technology to enhance imaging in targeted radionuclide therapies and enable image-based dosimetry in targeted alpha therapy. In addition, Dr. Torres-Espallardo coleads the Nuclear Medicine domain within Work Package on High-Technology Medical Resources of the Joint Action JANE-2. This European initiative builds on the achievements of the previous JANE project (2022–2024) and aims to establish seven new Networks of Expertise over the next four years. These networks focus on cross-cutting aspects of cancer care, including complex and poor-prognosis cancers, palliative care, survivorship, personalized primary and secondary prevention, omics technologies, high-technology medical resources, and adolescents and young adults with cancer. Current efforts are directed toward defining present and future expansions in the use of nuclear medicine and their implications for equitable access across Europe.

The topic of her session is "How PET technology bridges Science and Patient Care". Positron Emission Tomography (PET) is a powerful imaging technique that translates molecular and metabolic processes into visual data within living organisms. By using radiotracers such as 18F-FDG and more specialized agents (e.g., PSMA or amyloid tracers), PET enables the study of disease at a cellular level, providing insights beyond traditional anatomical imaging. Clinically, PET—especially when combined with CT or MR—plays a key role in precision medicine. It improves cancer diagnosis, staging, and treatment monitoring, while also guiding therapies such as planning in radiation oncology. Beyond oncology, PET supports decision-making in cardiology (e.g., assessing heart tissue viability) and neurology (e.g., detecting Alzheimer's disease and epilepsy). PET also bridges research and clinical practice by supporting drug development and enabling advanced techniques like total-body imaging or dedicated prototypes (e.g., brain), which enhances sensitivity and reduces radiation exposure. Combined with innovations such as AI-assisted analysis, digital twins and faster scanning technologies, PET continues to improve diagnostic accuracy, patient comfort, and healthcare outcomes.

Joao Seco and Jose Perez-Calatayud

Joint Chairs of ECMP 2026 Scientific Committee
ECMP 2026 Organizing Committee
European Congress of Medical Physics 2026

ECMP 2026 in Valencia: Culture and Tourism

Figure 1. Torres de Serranos

Valencia, located on the eastern coast of Spain, has a long and complex history shaped by multiple civilizations: Romans, Visigoths, Muslims and reconquered by James I of Aragon, marking the beginning of Christian rule and the establishment of the Kingdom of Valencia. Today, it stands as a dynamic city that blends its historical heritage with contemporary development. Valencia is situated along the Mediterranean coast. The city lies on a fertile plain historically irrigated by the Turia River, which played a crucial role in agricultural development. After the devastating flood of 1957, the river was diverted, and its former bed was transformed into the Jardín del Turia, now one of the city's most important green spaces.

Valencia, one of the largest cities in Spain, has a population of around 800,000 inhabitants in the city itself and over 1.5 million in its metropolitan area, making it a major urban and economic hub on the Mediterranean coast. In terms of communications, Valencia is well connected both nationally and internationally. The city is served by an extensive public transport network, including high-speed rail (AVE) linking it to cities such as Madrid. Additionally, Valencia Airport provides regular international flights, while the port of Valencia is one of the busiest in the Mediterranean, playing a key role in global trade and logistics.

Valencia offers a wide range of transportation options that make it easy to move around the city efficiently. The public transport system includes **metro, tram, and bus services**, which connect the main urban areas as well as nearby towns. The metro network is particularly useful for reaching key points such as the city center, the airport, and the coastal areas. The city is also well adapted for car travel, although traffic in central areas can be limited due to pedestrian zones and sustainability policies.

One of the most distinctive features of Valencia's transport system is its **strong emphasis on cycling**. The city is notably flat, which makes it especially suitable for bicycle use across all age groups and fitness levels. Valencia has developed an **extensive network of bike lanes** that connect residential neighborhoods with commercial, educational, and recreational areas. The public bike-sharing system allows residents and visitors to rent bicycles easily, promoting an eco-friendly and healthy mode of transport. Combined with its mild climate, these characteristics make cycling one of the most convenient and popular ways to get around the city.

Figure 2. Plaza de la Virgen

Valencia offers a wide range of tourist attractions that reflect both its historical legacy and modern innovation. One of the most iconic sites is the Ciudad de las Artes y las Ciencias, a futuristic architectural complex designed by Santiago Calatrava. The historic city center is home to landmarks such as the Catedral de Valencia, which showcases a mixture of architectural styles and houses the revered Holy Grail. Nearby, visitors can explore medieval streets, plazas, and markets that reflect the city's rich past.

Figure 3. Iglesia de San Nicolás

Below we make a series of recommendations that, in the opinion of the locals, would be fundamental in terms of cultural and gastronomic interest:

- **Catedral de Valencia**, where you can admire a blend of architectural styles and climb the **Miguelete tower** for panoramic views.

- Just a short walk away, visit the **Lonja de la Seda**, a UNESCO World Heritage Site that reflects the city's commercial importance during the 15th century.

- Wander through **Plaza de la Virgen** and the surrounding medieval streets, and consider stopping at the **Mercado Central**, one of the largest fresh food markets in Europe.

- **Jardín del Turia**, one of the largest urban parks in Spain. You can walk or rent a bike and follow this green corridor that crosses the city, passing gardens, bridges, and recreational areas. This route will naturally lead you to the impressive **Ciudad de las Artes y las Ciencias**, a futuristic complex where visits can be done to the main attractions: Oceanogràfic and the Science Museum.

- **Museo de Bellas Artes de Valencia** (Museum of Fine Arts, free entry) is highly recommended, as it is considered the second most important art gallery in Spain after the Prado. It is widely praised for its exceptional collection of Spanish classics and Valencian masters (Goya, El Greco, Murillo, Ribera, and the iconic Valencian impressionist Joaquin Sorolla).

- A visit to the **Iglesia de San Nicolás** is highly recommended; it is widely considered a "must-see" and is famously nicknamed the "Sistine Chapel of Valencia".

- Enjoy Valencia's Mediterranean beaches. Visit **Playa de las Arenas**, a lively urban beach where you can take a walk along the promenade or relax by the sea. This area is also well known for its seaside restaurants, making it an excellent place to try authentic Valencian cuisine. For a more traditional and nature-focused experience, continue your journey to **El Palmar**, located within the **Parque Natural de la Albufera**. This small village is famous for its rice dishes, **especially paella**, and offers a unique setting surrounded by rice fields and lagoons. A **boat ride at sunset in the Albufera** is highly recommended to end your trip.

Figure 4. Playa de la Malvarrosa

Valencia offers a balanced experience combining history, modern architecture, green spaces, and exceptional gastronomy. Valencia is internationally known as the birthplace of paella, a dish that embodies the region's agricultural heritage. In September, the weather is very pleasant in Valencia, making it perfect for visiting. The combination of cultural, historical, and natural attractions makes Valencia a well-rounded and highly appealing destination.

Our city, our country and our SEFM are very honored to host the prestigious ECMP26 congress and we wish all attendees a very productive scientific event while also enjoying the culture and gastronomy aspects.

Jose Perez-Calatayud and Joao Seco

Joint Chairs of ECMP 2026 Scientific Committee

ECMP 2026 Organizing Committee

European Congress of Medical Physics 2026

Milestone

Celebrating 100+ LUNA 3D SGRT systems worldwide

Get more information:
www.lap-laser.com

Advancing SGRT through Clinical Collaboration

Insights from LAP's LUNA 3D Clinical Partner Meeting

Building a clinical SGRT network

When LAP introduced LUNA 3D and the system received CE marking in 2024, our goal was not just to launch a new SGRT system, but to develop a solution shaped by clinical reality. This ambition is reflected in our guiding claim, "The New More in SGRT." From the very beginning, input from clinical experts has played a key role in defining the LUNA 3D system.

Figure 1. At the LUNA 3D Clinical Partner Meeting, experts exchanged insights on advancing SGRT in Valencia.

Just two years later, more than 100 installations are in place worldwide. Collaboration with clinical users has become the driving force behind our approach. A global network of dedicated clinical partners continuously contributes feedback from daily use of LUNA 3D, ensuring that our development efforts always reflect the clinical needs of modern radiotherapy.

Insights from clinical practice

In April 2026, we hosted our LUNA 3D Clinical Partner Meeting in Valencia. Experts from university clinics and private radiotherapy centers from Belgium, Germany, and France came together to share their experiences and discuss future directions in SGRT with LAP.

Participants represented different stages of the LUNA 3D experience: some are early adopters of LUNA 3D and have known the system since its development phase, while others have just recently started using it in clinical practice. This diversity enabled a balanced discussion covering both initial implemen tation and long-term optimization.

Clinical impact of LUNA 3D

Clinical partners reported clear benefits in daily practice, including more efficient patient setups and improved confidence in positioning. Some centers also noted a reduction in repeat CBCT scans, leading to potentially lower imaging dose.

For complex treatments, SGRT was described as providing additional confidence, particularly for large fields or multi-isocenter setups, where precise alignment before irradiation is critical. In this context, surface guidance can offer an additional layer of information to support clinical decision-making.

Another aspect highlighted by users was the ability to work without skin marks or tattoos. Several centers have implemented markerless workflows, which may enhance patient comfort while streamlining clinical processes. This can be particularly relevant in sensitive cases such as pediatric treatments, where reducing physical and emotional burden is an important consideration.

Across these use cases, user feedback consistently pointed to the intuitive and streamlined nature of LUNA 3D. RTTs noted that the system supports their daily work by facilitating efficient and user-friendly workflows – reflecting the guiding principle of LUNA 3D being designed to be "as easy as a laser."

Collaboration shaping the future

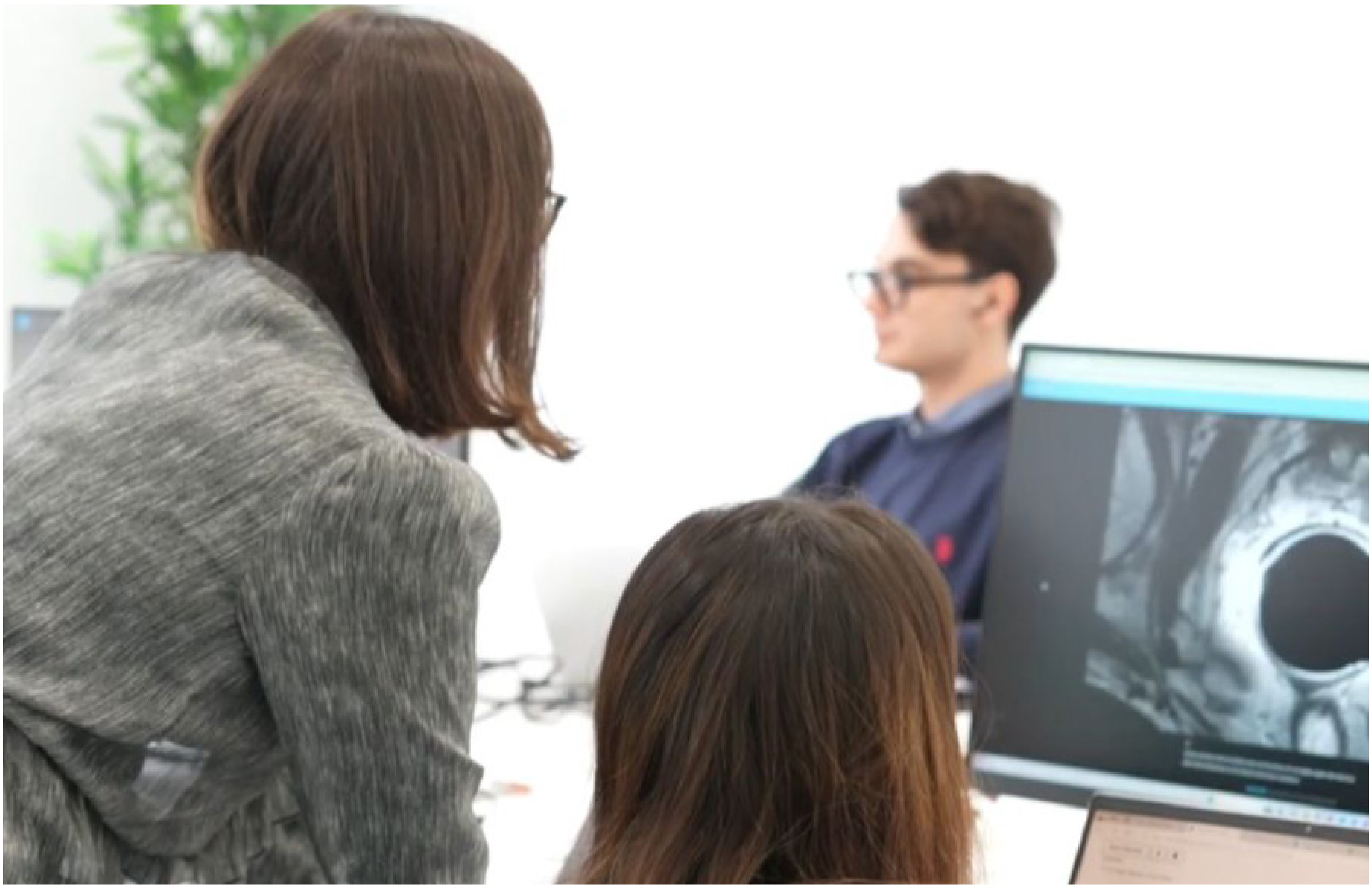
Beyond the exchange with LAP, one of the most valuable aspects of the meeting was the direct interaction between the clinics. Participants openly shared their experiences, discussed challenges, and exchanged practical solutions, creating a strong sense of mutual support.

We also discussed what comes next for LUNA 3D, including the upcoming update with significant new features, as well as developments such as surface-guided in vivo dosimetry, which is planned for introduction soon.

The key takeaway from Valencia is clear: progress in SGRT is not driven by technology alone, but by close collaboration with clinical experts and a strong focus on real-world application.

Jens Gauthier is Executive Managing Director Healthcare at LAP. He has been with the company for over 20 years, contributing to its growth into a global technology leader. His focus is on advancing innovative medical solutions that improve precision and safety in radiation therapy while supporting patient-centered care.

AI for Medical Physics: Health Triage's Vision and Solutions



The integration of Artificial Intelligence (AI) into clinical workflows is now an essential requirement for sustainable modern healthcare. In an era of exponential diagnostic data growth and chronic specialist shortages, the goal is not to replace human expertise, but to augment it. As a new EFOMP (European Federation of Organisations for Medical Physics) company member, Health Triage presents itself to the international medical physics community with a strong approach based on scientific rigor, algorithmic transparency, and a "human-in-the-loop" collaborative model.

Strategic innovation and institutional backing

Founded in 2020, Health Triage is an Italian deep-tech company developing deep learning solutions to transform computational complexity into reliable clinical tools. This journey is supported by the **Petrone Group**, a global leader in healthcare distribution, and the **ENEA Tech and Biomedical Foundation**. The latter's investment is specifically designed to accelerate technology transfer from research to hospital practice, scaling Italian excellence globally and advancing AI-driven oncological prevention.

BreastNegative: optimizing mass mammography screening

Breast cancer screening presents a significant clinical and logistical challenge. While approximately 99.4% of screening mammograms are negative, protocol-mandated double reading consumes vast human resources. Health Triage developed **BreastNegative**, a CE MDR Class IIb certified medical device. Utilizing proprietary algorithms trained on international reference datasets (including the **7-million-image OPTIMAM database**), it automatically identifies clearly negative exams. This allows radiologists to focus their diagnostic expertise on suspicious or complex cases, enhancing overall system efficiency. The ongoing scientific validation in collaboration with **GISMa (Italian Group for Mammography Screening)** ensures total alignment with the highest methodological standards.

PROSTATE V-Bio: diagnostic precision and therapy support

While BreastNegative focuses on prevention, **PROSTATE V-Bio** addresses advanced oncological diagnostics. Designed as a non-invasive "virtual biopsy," this technology analyzes multiparametric MRI (mpMRI) to estimate tumor aggressiveness via Gleason Grade scoring. It serves as a critical decision-support tool for selecting patients for invasive biopsies. Currently undergoing regulatory validation for **FDA clearance**, the system also offers significant value for medical physicists and radiation oncologists. The resulting aggressiveness maps support high- precision target volume definition, enabling personalized treatment and potentially reducing side effects.

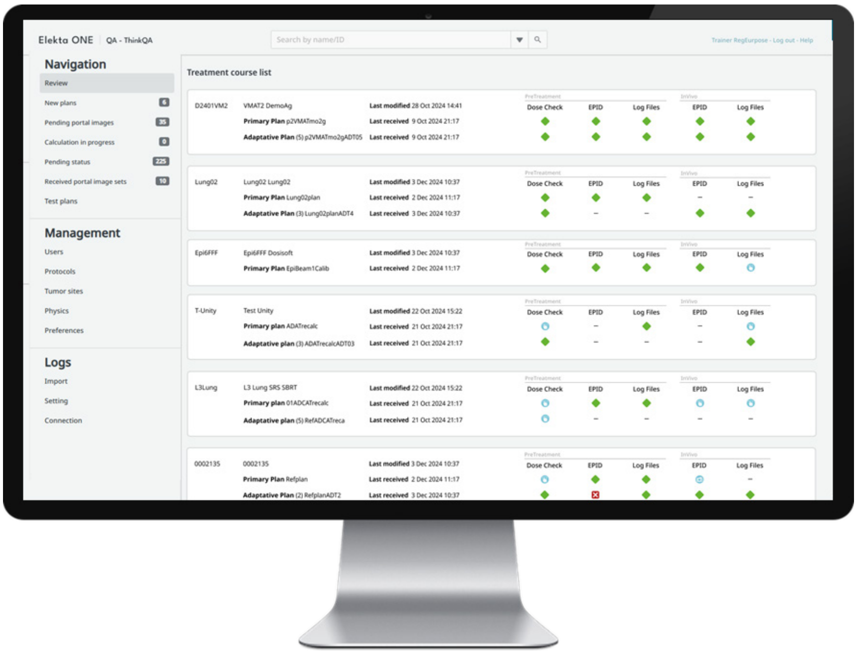
Beyond the "Black Box": the value of transparency

For medical physicists, software reliability is inseparable from interpretability. Health Triage rejects the "black box" approach, adopting an interdisciplinary method that ensures explainable and verifiable outputs. AI acts as an "intelligent triage" to enhance clinical analytical capabilities while keeping final decision-making firmly in the hands of the professional. Our membership in EFOMP reflects our commitment to an ecosystem where technology, ethics, and expertise cooperate to deliver measurable clinical outcomes. Together with our partners, we ensure that innovation translates into faster, more precise, and more human-centric medicine.

Daniele Regge is Associate Professor of Radiology at the University of Turin and former Director of Radiology at IRCCS Candiolo. An internationally recognized expert in oncologic imaging, his work focuses on advanced imaging and AI-driven clinical applications. He is Chief Medical Officer at Health Triage.

Francesco Signor is journalist and communications professional, he has written for Panorama Economy and Espansione, and curated the supplement of Il Riformista. An expert in brand strategy and corporate storytelling for multinational companies and startups, he combines analytical rigor with strategic vision to position innovation in the market.

DOSIsoft Unveiled New ThinkQA 3.0 at ESTRO 2026: Unified PSQA Platform for Offline and Online Adaptive Radiotherapy



The key capabilities demonstrated at ESTRO:

- **Automated PSQA**: GPU-powered 3D CCC (Collapsed Cone Convolution) algorithm delivering QA results **in just 1-2 minutes**
- **Integrated** workflow: **seamless integration into Elekta ONE** without adding time to the routine QA process
- **Centralized** QA Management: all PSQA tasks (pre- & post- treatment) managed within a single and connected platform
- **Simplified** QA user experience: Enhanced usability and web-based access

DOSIsoft, leading provider of dosimetry software solutions for radiation oncology and nuclear medicine, **showcased its new ThinkQA 3.0 - Unified PSQA Platform during the annual meeting of the European Society for Radiotherapy and Oncology (ESTRO)**, in Stockholm, Sweden.

As radiation therapy advances toward modern, time-constrained online Adaptive Radiation Therapy (ART), Patient Specific Quality Assurance (PSQA) processes must become faster, more reliable, and more integrated into clinical workflows. ThinkQA 3.0 addresses these challenges by combining **speed**, **accuracy** & **simplicity** into a unified platform designed to **support online ART workflow**, for both CT-Linacs and MR-Linac.

At DOSIsoft Booth C16:51, Healthcare professionals explored the ThinkQA 3.0 design innovation – dedicated to **streamline Patient QA experience.**

ThinkQA 3.0: Delivering end-to-end QA capabilities for adaptive radiation therapy

Tailored to meet the specific requirements of adaptive radiotherapy, ThinkQA 3.0 represents a significant technological breakthrough - **fully compatible with online and offline adaptive workflow**. It runs around a unique, fast and optimized CCC calculation engine, validated against Monte Carlo simulations. ThinkQA 3.0 enables 3D dose distributions and 2D dose image comparisons using the same calculation engine to perform all PSQA verifications, reducing biases introduced by multiple engines.

- **Secondary dose check**: Independent full 3D dose calculation, **automatically handling adapt-to-position and adapt-to-shape plans**
- **Logfile analysis**: Automated pre-treatment and in vivo treatment verifications, based on machine delivery logs, and computed into 3D dose distributions.
- **Pretreatment check**: EPID-based phantom-less QA providing instant gamma-based comparison results.
- **In vivo dosimetry check**: EPID-based transit dosimetry QA for dose deviation detection during patient treatment.

ThinkQA 3.0: Automated and integrated Quality Assurance for Elekta Linacs

Multi-vendor by design, the latest product release **fits perfectly into Elekta modern radiotherapy ecosystem**. It works with all Elekta linear accelerators, including **Elekta Evo CT-Linac & Elekta Unity MR-Linac** for adaptive radiotherapy.

In the specific case of Unity MR-Linac, the advanced CCC calculation engine takes into account the cryostat transmission and magnetic field effects on the dose distribution.

Configured using Elekta ready-to-use beam templates and models for all verifications, ThinkQA 3.0 **simplifies the overall commissioning** to significantly reduce workload, ensure high standards of safety and regulatory compliance.

"ESTRO provides a unique opportunity to connect with the radiation oncology community and demonstrate how ThinkQA 3.0 helps clinics keep the highest level of quality assurance in increasingly sophisticated adaptive radiotherapy, " said Marc Uszynski, CEO at DOSIsoft, "The new ThinkQA 3.0 - unified PSQA platform delivers outstanding performance, offering dose computation accuracy, actionable QA dosimetric insights, all via its intuitive web dashboard. Its streamlined commissioning and seamless integration with Elekta ONE represent key advantages, enabling clinical teams to deliver safer, more precise treatments with greater operational confidence."

References:

[1] **About ThinkQA**
ThinkQA 3 is under on-going product regulatory approval. The product may not be available in all markets. Please contact your local sales representative for more information.

As part of the Elekta ONE solution, ThinkQA is distributed exclusively by Elekta www.elekta.com

[2] **About DOSIsoft** www.dosisoft.com

Founded in 2002, DOSIsoft is a market leader specializing in dosimetry software for Radiation Oncology and Nuclear Medicine to improve cancer treatment quality and patient safety. DOSIsoft offers advanced, efficient patient-specific quality assurance (PSQA) and Theranostics solutions.

With over 1,000 installations across more than 800 hospital centers in 80 countries, DOSIsoft supports healthcare professionals worldwide in delivering precise, personalized care. A spin-off from leading French cancer research institutions, Gustave Roussy and Institut Curie, DOSIsoft continues to innovate through close collaboration with top cancer institutes and research centers around the world. www.dosisoft.com

Marc Uszynski is the Chief Executive Officer at DOSIsoft, France. He has "30-year-experience in product & business development in software, media and digital sectors bringing the company to a next level of international development.

From Geometric Phantoms to Clinically Predictive Testing: The Evolving Role of Phantom-Based QA in Medical Imaging

Quality assurance (QA) in medical imaging has traditionally focused on the technical performance of scanners, ensuring consistent output within defined limits. Conventional QA methods typically use simple test objects made of uniform materials and basic geometries. These geometric phantoms offer reproducible benchmarks independent of patient variability. However, their very simplicity is also their limitation, as they do not reflect the anatomical complexity encountered in clinical practice. As imaging technology evolves and artificial intelligence (AI) becomes integrated into routine workflows, the gap between conventional QA and real-world clinical performance has grown increasingly apparent.

Modern imaging systems employ advanced acquisition and post-processing techniques that interact with anatomical structures and affect both image quality and diagnostic interpretation. In this setting, traditional metrics derived from geometric phantoms often fall short of predicting actual clinical performance. QA is therefore shifting from purely technical measurements to outcome-oriented frameworks that assess whether diagnostic objectives – such as accurate lesion detection – are consistently met. The growing use of AI in imaging further underscores this need. AI algorithms are sensitive to variations in image acquisition and frequently operate as opaque black boxes, making controlled and clinically relevant validation essential. Phantom-based testing is uniquely positioned to address these challenges, provided that phantoms capture not only the physics of imaging but also the anatomical and pathological features relevant to diagnostic tasks.

In response to these evolving requirements, a new class of anthropomorphic phantoms has been developed. PhantomX is among the organizations advancing this approach, producing phantoms designed to replicate human anatomy, tissue heterogeneity, and disease characteristics relevant to diagnostic imaging. Enabled by advances in materials science and manufacturing, these phantoms extend beyond the uniform structures of traditional designs by incorporating features that mimic bone, soft tissue, organ structures, and pathologies (Figure 1). This increased realism allows imaging systems and AI-based analysis workflows to be evaluated under conditions that closely reflect clinical practice, bridging the gap between physical quality assurance and clinical relevance (Figure 2).

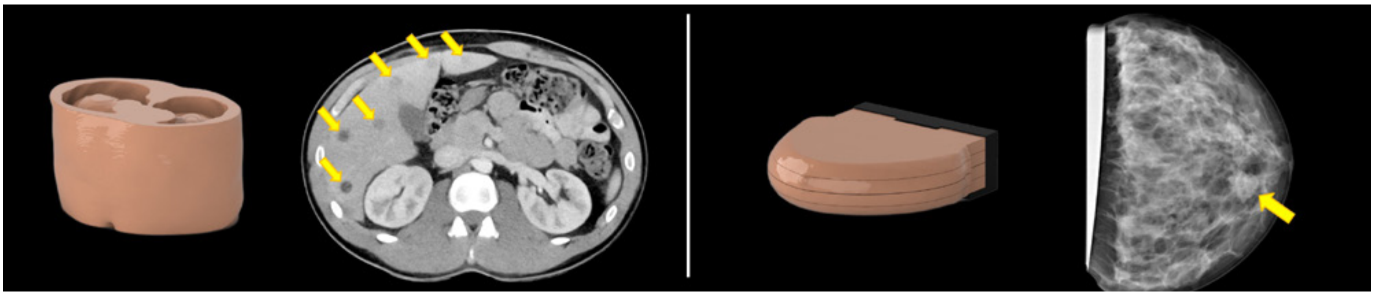


Figure 1. Left side shows a CT image of an abdominal phantom with liver lesions (arrows). Right side shows a mammography image of a breast phantom with a mass (arrow).

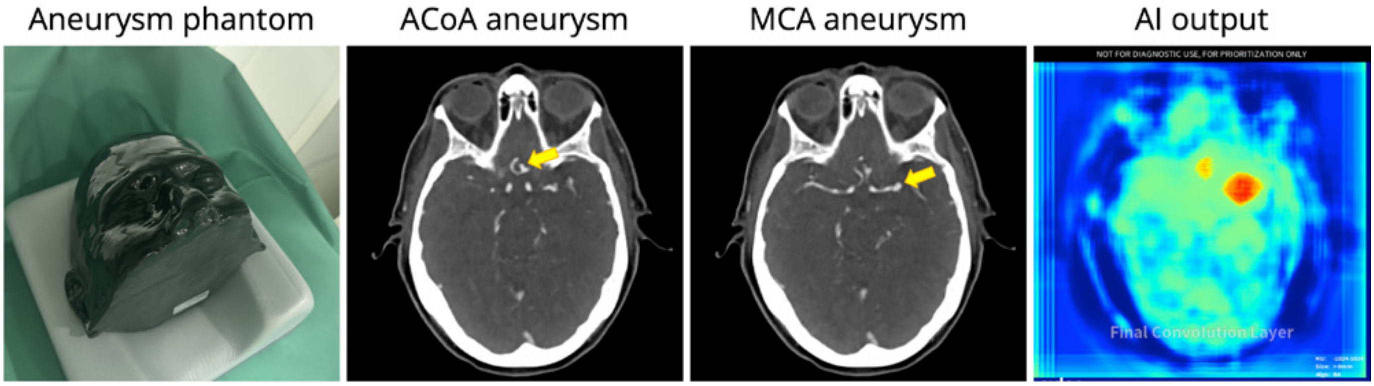


Figure 2. Head phantom with multiple intracranial aneurysms, including aneurysms of the anterior communicating artery (ACoA) and the middle cerebral artery (MCA), used to test AI-based aneurysm detection. Adapted from Goelz et al. (2025), Scientific Reports, https://doi.org/10.1038/s41598-025-04830-7, licensed under CC BY 4.0.

A major advantage of using physical anthropomorphic phantoms in this context is reproducibility. While clinical data can be variable and influenced by patient-specific factors, a physical phantom can be imaged repeatedly under controlled conditions. This enables standardized comparisons across devices, sites, and time points. It also supports traceability – a growing requirement in the evaluation of AI tools, where regulators increasingly expect transparent evidence demonstrating how an algorithm performs under different scenarios. As a stable reference for proactive on-site validation and surveillance, physical phantoms can complement population-based AI evaluation and strengthen the robustness and interpretability of performance assessments.

The development of realistic anthropomorphic phantoms has also opened pathways for new kinds of research collaborations. PhantomX has partnered with clinical and scientific groups, including consortia focused on breast imaging, algorithmic performance, and institutions responsible for large-scale CT quality management. Such collaborations have leveraged the phantoms' ability to replicate clinically relevant structures for testing, education, and AI deployment. These partnerships demonstrate how standardized physical models can facilitate multi-center studies, support method comparison, and ensure that rigorous algorithmic surveillance translates into robust performance.

In recent years, the importance of this approach has been further recognized in industry and regulatory discussions. As recent as November 2025, PhantomX has partnered with IBA Dosimetry GmbH, a provider of dosimetric and quality assurance solutions for medical imaging and radiation therapy. The integration reflects a broader commitment to advancing QA technologies capable of supporting both traditional imaging and emerging AI-driven workflows. There is a clear need for tools that improve safety, effectiveness, and transparency in medical imaging – a vision strongly aligned with the evolving expectations of clinical physicists and regulatory agencies.

What makes PhantomX phantoms particularly valuable for the medical physics community is that they can serve as a common testing platform, independent of vendor ecosystems, scanner generation, or software version. As AI becomes more deeply embedded into acquisition, reconstruction, and diagnostic pathways, the need for such neutral, standardized testing environments will continue to grow. Medical physicists are increasingly tasked with evaluating not only hardware performance, but also how intelligent systems contribute to – or potentially bias – clinical decision-making. Here, realistic anthropomorphic phantoms offer a stable foundation for generating the kind of evidence that supports safe adoption.

In summary, the introduction of anatomically realistic physical phantoms reflects a meaningful shift in imaging QA from a primary focus on technical scanner performance toward more outcome-oriented evaluation frameworks. By enabling the evaluation of imaging systems under controlled yet clinically realistic conditions, these phantoms bridge the gap between conventional performance metrics and the lived clinical reality in which both humans and AI operate. As radiology continues to evolve into a more complex and data-driven discipline, such tools will play an increasingly important role in ensuring safe, effective, and transparent imaging practices.

Paul Jahnke, Radiologist and founder of PhantomX, is a pioneer in anatomically realistic phantom technologies. His experience spans research, clinical practice, and entrepreneurship, with a focus on the performance evaluation of clinical imaging processes.

Arianna Giuliacci, Nuclear Engineer, head of the Clinical Application team at IBA Dosimetry. More than 15 years of experience as R&D physicist, customer manager, providing clinical implementation of IBA products.

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From Market Demands to Clinical Solutions: How Halcyon 5* Delivers

Before I joined Varian as a product marketer, I worked in the clinic. I remember the pressure of keeping workflows efficient while knowing that every millimeter could change the outcome for a patient. I also remember the frustration when technology slowed us down instead of supporting us.

That is why the arrival of Halcyon 5* feels different. This marks a pivotal shift in how radiotherapy is evolving and how the market is responding.

Let's talk about what I'm hearing from the field

Across the globe, cancer centers face the same challenges: increasing patient volumes, tightening budgets, growing staff shortages, and the demand for higher quality outcomes with fewer resources. At the same time, there is increasing pressure for higher patient throughputs, stronger returns on hospital investments, and, most importantly, better quality of care for every patient who walks through the door.

Clinics need solutions that integrate seamlessly into existing workflows, automate repetitive steps, and deliver measurable efficiency gains without compromising clinical quality or patient safety.

So how do we meet this demand? We do it with Halcyon 5. It is built to streamline patient positioning, enhance workflow efficiency, and give clinical teams the confidence to deliver every treatment with precision and quality. Let's take a closer look at this solution.

IDENTIFY 5*: Smarter Positioning, Seamless Workflow

With IDENTIFY 5, automation is part of the foundation. From the moment you open the patient into the system, the workflow flows naturally. The patient is aligned and loaded, IGRT images are acquired, and a new surface is automatically captured at the same time as the CBCT.

IDENTIFY 5's redesigned interface invites confidence from the start; its layout and workflow allow clinicians to focus on what matters most. And with its monitored beam hold function, treatment pauses automatically if the patient moves outside a defined threshold. It is automation designed to make treatment both efficient and safer.

PerfectKinetix: Precision in Every Direction

The PerfectKinetix couch provides six degrees of freedom with submillimeter accuracy and is designed to be upgradable onto existing systems. The system automatically levels and verifies its calibration, which is powered by a Monte Carlo algorithm that completes one hundred poses in approximately twenty-five minutes. The extended camera mount aims to improve comfort for taller patients, and the couch surface has been redesigned to simplify cleaning and enhance the longevity of index markings.

Every design element, including the therapist-oriented covers and the auto-leveling feature, was developed with clinical realities in mind. With seamless integration into Halcyon and IDENTIFY, PerfectKinetix enables remote and precise patient positioning, continuous monitoring, and automatic beam hold as part of a unified workflow. These enhancements contribute to improved efficiency and increased access to care.

Learn more about IDENTIFY

Learn more about Halcyon

Sabine Bernard is the ROS Global Product Marketing Director, for the Varian business line in Siemens Healthineers, responsible for shaping global positioning and go-to-market execution. Backed by 25+ years in the medical device industry, she brings deep expertise in aligning clinical priorities, customer experience, and commercial strategies to accelerate market penetration and outcomes. She is passionate about driving effective adoption of clinical solutions and improving access to care.

What Does This Mean for You?

The best part about my role is I get to have conversations with customers in every part of the world, and I hear the same thing no matter where I go. You want solutions that are integrated, intelligent, and adaptable.

That is why PerfectKinetix and IDENTIFY 5 excite me so much. They are not just meeting expectations; they are raising them. They are showing what is possible when automation, integration, and clinical confidence come together in a single solution.

The next wave of innovation will put even more focus on connected ecosystems, real-time adaptive capabilities, and sustainability. And when I see solutions like Halcyon 5, I know we are heading in the right direction.

Optimizing Mammography Performance Through Advanced QA Technology

As mammography continues to evolve, new detector technology is redefining how kVp, HVL, dose, and other key parameters are measured with accuracy and efficiency.

Figure 1. With the Ocean computer software all measured parameters can be seen at the same time, including waveform.

Precision Matters: Elevating QA in Mammography

Mammography screening is uniquely demanding within diagnostic imaging since most of the patients are healthy with no disease in the exposed area. Designed to detect the earliest signs of breast cancer, it relies on exceptional contrast sensitivity to distinguish subtle variations in soft tissue. At the same time, it operates at relatively low X-ray energies, where even small inconsistencies can affect both image quality and patient dose.

This makes quality assurance (QA) not just a regulatory requirement, but a cornerstone of clinical confidence.

Unlike general radiography, mammography systems use a wide variety of target and filter combinations to shape the X-ray spectrum. From standard screening to contrast-enhanced techniques, beam qualities can vary significantly, typically spanning 18 to 49 kV. Ensuring consistent system performance across this range is one of the key challenges facing medical physicists and service engineers. See picture 1.

Measuring What Matters

Effective QA in mammography focuses on verifying both radiation output and beam quality. Core measurements include:

- Tube voltage (kVp)
- Dose and dose rate
- Exposure time
- Half-value layer (HVL)

These parameters directly influence image contrast and patient exposure. They also form the basis for calculating Average Glandular Dose (AGD), widely recognized as the most relevant dose metric in breast imaging.

Given the clinical importance of these values, accuracy and traceability are essential. International protocols such as ACR and EUREF place strong emphasis on reliable measurement methods and repeatable workflows.

Mako: Built for Mammography

RTI Group's Mako system introduces a new level of capability for mammography QA through its dedicated Mako Mammo Probe.

A defining advantage is its ability to cover the entire clinical kV range (18–49 kV) without requiring multiple detectors. This allows users to perform both standard and advanced QA tasks, with a single setup across all measurement parameters.
The Mako Mammo Probe advanced detector covers all existing mammography beam qualities on the X-ray Mammography market, covers older systems and the newest additions to the market, including emerging target/filter combinations such as titanium. See picture 2.

Figure 2. a) Mako Base Unit with Mako Mammo Probe, b) Mako Mammo Holder

Reducing Complexity in Daily QA

In practice, QA efficiency depends as much on usability as on accuracy. Mammography setups can raise practical questions: positioning relative to the chest wall, handling of the compression paddle, or adapting to different system geometries.
Mako addresses these challenges through intelligent design:

- Simply place and measure with the Mako Probe, no orientation-dependence. Reduces setup errors and makes Mako robust across systems and users
- No need to worry about the compression paddle. Mako has automatic compensation to reduce the user selections required
- No selections required to measure at all with Mako. The user always has the option just measure dose, HVL and time without any manual input

In some markets the meter should be at 40 mm or

45 mm hight. The RTI Mako Mammo Holder enables easy, precise positioning of the Mako Mammo Probe at both these heights, see Picture 2 b.

Supporting Advanced Imaging: Tomosynthesis

The increasing adoption of digital breast tomosynthesis (DBT) adds another layer of complexity. As the X-ray tube moves through multiple angles, maintaining accurate dose measurement becomes more difficult.

Mako's detector enables reliable measurements across wide angular ranges, supporting QA in both 2D and 3D imaging without repositioning for ±30° angle.

The Role of the Mako Display

Designed as a fully wireless, app-powered interface, the Mako Display removes the need for cables, external laptops, or complex setup. Measurements are streamed in real time directly to the user's device, providing immediate access to kVp, dose, HVL, waveforms, and other key parameters at the point of testing.

The app is available as a free download with no licenses or user restrictions, making it easy to deploy across teams and devices without additional cost or complexity.

Mako is also built for flexibility. When needed, the Mako Probe can be connected to the Base Unit via cable, to allow more delicate positioning. Mako can also connect to a full fleet of external detectors like mAs meters, light meters and ion chamber detectors. And when deeper QA work is needed with analysis, calculation and reporting, the RTI computer software Ocean Next can be used to automate QA routines.

More Reliable Mammography QA

As breast imaging technology evolves, QA must keep pace with increasing complexity and higher expectations. The combination of accurate measurement, simplified setup, and integrated software tools represents a more sustainable approach to quality assurance.

With Mako and its connected display environment, QA becomes not only more precise, but also more efficient and easier to manage. The result is a workflow that supports clinicians in delivering high-quality mammograms with confidence—every time.

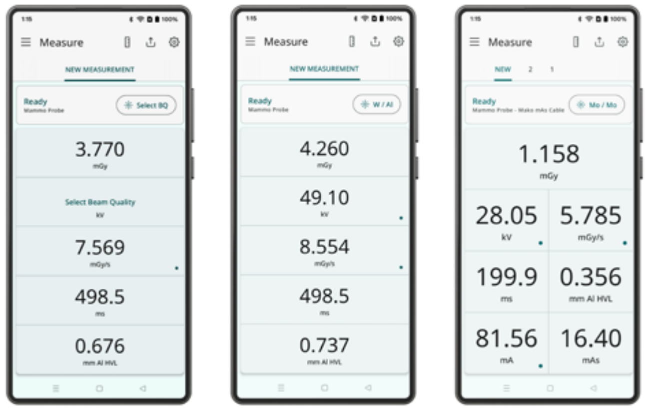


Figure 3. Mako Display a) No selected Beam Quality, b) Selected Beam Quality, c) Mako Mammo Probe with mAs-meter connected (simultaneous tube & generator measurement)

Björn Cederquist is a Sweden-based medical physicist who joined RTI Group in 2008. Starting in R&D with detector design, he moved into sales and technical support in 2009. Today, he supports customers across mainland Europe, Japan, and South Korea, combining strong technical expertise with practical clinical insight.

Quality Matters: Ensuring Safe and Reliable LDCT

Among all types of cancer, lung cancer remains one of the deadliest, accounting for 4.4% of all deaths in the European Union and nearly one fifth (19.8%) of all cancer-related deaths in 2022 [1]. One key reason is that most patients are diagnosed far too late. This reality highlights the life-saving potential of early detection: when lung cancer is identified at an early stage, treatment is more effective and survival rates improve significantly.

Advances in imaging technologies continue to expand what is possible in early detection. Photon-counting CT systems, for example, offer higher spatial resolution, improved contrast-to-noise ratios, and enhanced visualization of even the smallest pulmonary nodules — while keeping radiation doses remarkably low. These capabilities make them a game changer for modern lung cancer screening programs.

However, advanced technology alone is not sufficient. Across Europe, screening is performed using a wide range of CT systems, ranging from conventional energy-integrating detector scanners (EID) to next-generation photon-counting CT models (PCCT). Ensuring consistent image quality and diagnostic reliability across this heterogeneous landscape requires standardized, reliable quality control. Multinational initiatives such as the SOLACE project are therefore working towards the harmonization of low-dose screening protocols and the integration of quality assurance as a standard part of clinical practice.

Against this background, standardized tools and robust quality assurance are essential to improve outcomes for a disease that remains one of the leading causes of cancer-related mortality worldwide.

QRM Lung Nodule Phantom: A Precision Tool for LDCT Quality Assurance

The soft-tissue-equivalent Lung Nodule Phantom by phantom specialist QRM is purpose-built for low-dose lung cancer screening and clinical quality control programs. Its compact, intelligent design incorporates a variety of lung nodules positioned within the pulmonary region, enabling consistent and reproducible assessment of screening performance.

Within the phantom, spherical nodules of varying sizes and densities are randomly distributed across both lung lobes, simulating a wide range of clinical scenarios, including subtle ground glass opacity. This allows clinicians to evaluate detection accuracy under realistic imaging conditions

Figure 1. QRM Lung Nodule Phantom for realistic quality assurance in low-dose CT lung cancer screening.

The lung material is available as homogeneous or heterogeneous granulate, which users can optionally fill into the lobes to adapt the setup to specific quality assurance objectives. To further enhance anatomical realism, the phantom includes a spinelike structure that mimics cortical and spongious bone, creating a semi-anthropomorphic environment for imaging tests.

Clinical Insights: Quality Assurance with the Lung Nodule Phantom

Practical experience from an external medical physics expert team illustrates how phantom-based testing can strengthen routine QA in low-dose CT (LDCT) lung cancer screening. Uwe Heimann, medical physics expert and CEO of Ihr MPE B+C GmbH, supports multiple clinics and practices across Germany in implementing and maintaining standardized quality control workflows for CT-based screening programs, often across sites with different CT vendors, detector generations, reconstruction techniques and protocol philosophies.

The Lung Nodule Phantom has proven well suited for routine LDCT quality assurance, as it combines established image quality markers with lung-specific test structures addressing key clinical questions in lung cancer screening. The central focus is the reliable detection and assessment of small pulmonary nodules under low-dose conditions, for example at CTDIvol values below 1.3 mGy, within an anthropomorphic setting.

In LDCT, image quality represents a critical balance between minimizing radiation exposure and maintaining diagnostic confidence. The phantom enables this balance to be assessed objectively and reproducibly by evaluating whether lung nodules of varying size, density and contrast remain detectable when dose-reduced protocols are applied. Optional obesity rings further allow assessment of image quality under adapted dose settings in patients with higher body mass.

This clinical relevance becomes even more important when quality assurance services are delivered across multiple sites. Differences in automatic CT dose modulation and dose levels, as well as reconstruction techniques—from iterative techniques to deep-learning-based approaches—can lead to markedly different image impressions. The phantom provides a vendor-independent reference that enables different CT systems to be evaluated under comparable conditions. Protocols can be compared based on the resulting image quality for a specific diagnostic task rather than dose indicators alone (e.g., CTDIvol or DLP). Using the same phantom across clinical sites supports cross-site harmonization of LDCT protocols, makes protocol adjustments traceable and allows minimum requirements for small nodule depiction to be checked.

For routine, day-to-day use, two aspects are particularly important: clinical relevance and practical handling. Embedded nodules must represent realistic sizes, densities, and contrasts, ensuring that small solid or semi-solid structures remain reliably visible at low dose levels. This advantage is particularly valued by reporting clinicians, as it enables a reality-based assessment of image quality rather than a purely synthetic or abstract evaluation.

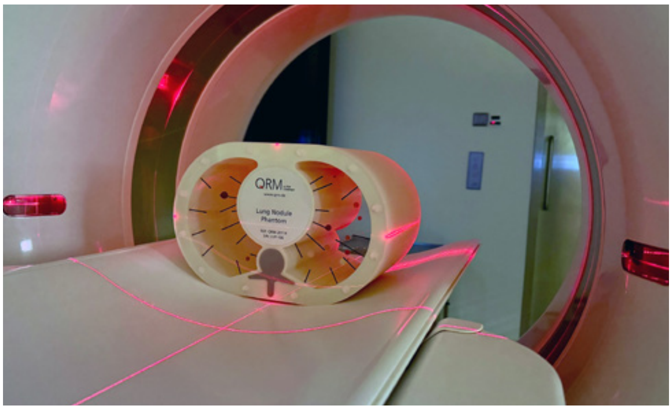


Figure 2. Easy phantom setup, fast assessments, enabling quality assurance to be seamlessly integrated into routine clinical practice. Photo: Ihr MPE B+C GmbH

Operational efficiency is equally critical — the phantom must be easy to position, quick to scan, and straightforward to evaluate in order to integrate seamlessly into recurring QA schedules. The compact anthropomorphic design of the QRM Lung Nodule Phantom supports an efficient setup, while lung nodules with known positions facilitate faster, more consistent assessments.

Taken together, these clinical insights underscore a key point: in LDCT lung cancer screening, quality assurance benefits from tools that enable realistic testing of scanner performance while remaining practical for routine use across diverse clinical environments.

For further information on the underlying physics and standardized methods for image quality assessment using QRM phantoms, download the QRM Code of Practice.

Burcu Hiz Temizer holds a master's degree in Medical Physics and has over 20 years of experience in the medical technology industry. She joined PTW Freiburg in 2022 and is responsible for the QRM and PTW diagnostic product lines.

References:

[1] Eurostat. Cancer statistics – specific cancers. European Union, 2022.

Uwe Heimann is a medical physics expert and CEO of Ihr MPE B+C GmbH, a medical physics services company providing consulting support to clinics and professionals. With extensive clinical experience in diagnostic and interventional radiology, his work focuses on the safe implementation and quality assurance of CT protocols, including low-dose lung cancer screening.

Standard Imaging Unveils QA BeamChecker™ Pro — Single-Setup, Smarter Daily QA

Middleton, WI— Standard Imaging unveils the new QA BeamChecker™ Pro, redesigned from the ground up to give therapists a faster, simpler, and more intuitive daily QA experience. With unique energy detection, single setup for both photon and electron energies and a first-in-market touch-screen, this release sets a new bar for efficiency in the treatment vault.

As clinics face increasing patient volumes and tighter schedules, efficiency matters more than ever. The new QA BeamChecker Pro eliminates extra handling with single-setup energy checks for both photon and electron beams — no more flipping the device. With 30 measurement chambers and an optimized internal design, therapists get faster results, fewer interruptions, and a smoother start to every treatment day.

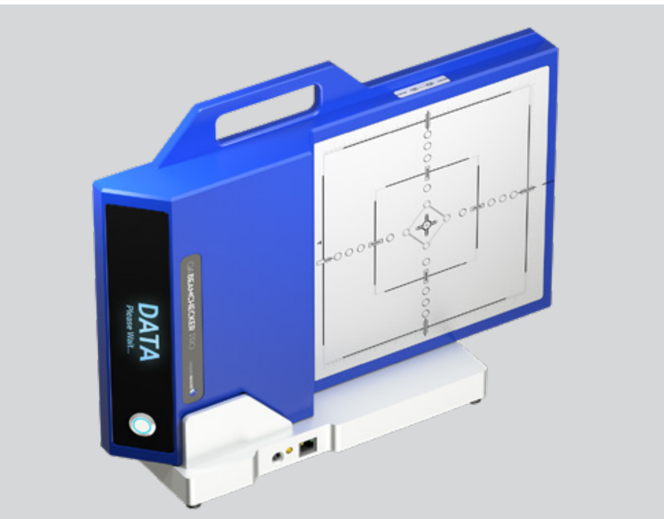


Figure 1. QA BeamChecker™ Pro in cradle.

"Daily QA should never slow down patient care or limit clinic throughput," said Eric DeWerd, MBA, CEO and President of Standard Imaging. "We redesigned the QA BeamChecker Pro around how therapists actually work—single setup, automatic energy detection, and immediate clarity at the console. The result is a smarter daily QA experience that protects uptime, simplifies workflows, and delivers physics-grade confidence every single morning."

Key Features:

- 30 measurement detectors
- Automatic energy detection
- Test both 10 x 10 cm^2 and 20 x 20 cm^2 fields
- Measure electron and photon energies using single setup (No more flipping!)
- ONLY and largest touchscreen front panel for quick setup & displayed results
- Automatic data transfer from device to database via Wi-Fi or ethernet cable
- Browser-based software application

Delivering the promise to do more with less, both 10 × 10 cm^2 and 20 × 20 cm^2 field sizes are now supported, assuring reliable performance across a broader range of scenarios. Its large, intuitive touchscreen—the only one of its kind—makes setup fast, reduces training time, and keeps pass/fail results clearly visible through vault cameras. Built-in diagnostics and physics mode functionality further enhance troubleshooting and support, giving therapists and physicists a tool that's both powerful and easy to use.

"The QA BeamChecker Pro is a significant upgrade both in terms of hardware and software from our well-known and highly regarded QA BeamChecker Plus," said Andea Zens, Product Manager. "The sleek new design incorporates important advancements in touchscreen display, ion chamber, battery, and Wi-Fi technology without sacrificing automatic energy detection and standalone operation. The all-new software application features advanced data displays, enhanced trending and reporting while simplifying and automating daily workflows."

Connected to a modern, browser-based software platform, the QA BeamChecker Pro brings all QA data into a single, unified database, making it simple to track and trend dose output, constancy, flatness, and symmetry across devices and linacs.

The new QA BeamChecker Pro empowers therapists to streamline daily QA, while providing physicists with the data to ensure consistent, reliable machine uptime — helping clinics work efficiently today while staying ready for the future.

About Standard Imaging

Standard Imaging remains at the forefront of the industry with cutting-edge QA solutions that guarantee precise, reliable, and safe patient care. By continuously advancing technology and setting new standards of excellence, they reinforce their commitment to equipping clinics worldwide with the essential tools for achieving optimal treatment outcomes.

For more information, contact the Standard Imaging team.

Ashley Reis is the Marketing Operations Lead at Standard Imaging and has been with the company since 2020.

successREF: Confidence in Radiotherapy Starts with Confidence in Absorbed Dose

RTsafe introduces successREF, a new dosimetry audit service designed to strengthen confidence in radiotherapy beam calibration through independent, scientifically robust verification of absorbed dose under reference conditions.

Modern radiotherapy relies on increasingly complex technologies, tighter treatment margins and higher dose gradients. In this environment, confidence in beam output calibration is directly linked to patient safety, treatment quality and institutional credibility.

A relatively small deviation in absolute dose delivery may affect the entire clinical workflow. For clinicians, this translates into uncertainty regarding tumour control and normal tissue toxicity. For medical physicists, it creates additional pressure on already demanding quality assurance programmes. For hospital administrators, it introduces operational and regulatory risk, particularly as external quality standards and accreditation requirements continue to evolve.

Independent dosimetry audits have therefore become an essential component of modern radiotherapy practice. However, conventional audit approaches are often resource-intensive, time-consuming and difficult to integrate into busy clinical schedules.

RTsafe developed **successREF** to address these challenges. successREF is an absolute dosimetry audit service focused on verifying absorbed dose under reference conditions for megavoltage photon and electron beams. The service was designed to combine scientific rigor with operational simplicity, enabling radiotherapy centres to access independent dosimetric verification without interrupting routine clinical activity.

The added value of successREF extends beyond compliance testing. For medical physicists, the service provides an independent confirmation of beam output calibration using traceable dosimetry systems and transparent reporting. The audit supports confidence in local reference dosimetry procedures while helping identify potential inconsistencies before they can propagate into clinical treatments.

For radiation oncologists and multidisciplinary clinical teams, successREF provides reassurance that the prescribed dose is delivered accurately and consistently. In high-precision treatments, where small deviations may have a significant clinical impact, this independent verification contributes directly to safer patient care.

For hospital management and administrators, successREF offers a practical external quality assurance solution that demonstrates commitment to quality, safety and continuous improvement. The workflow minimises operational burden while sup-

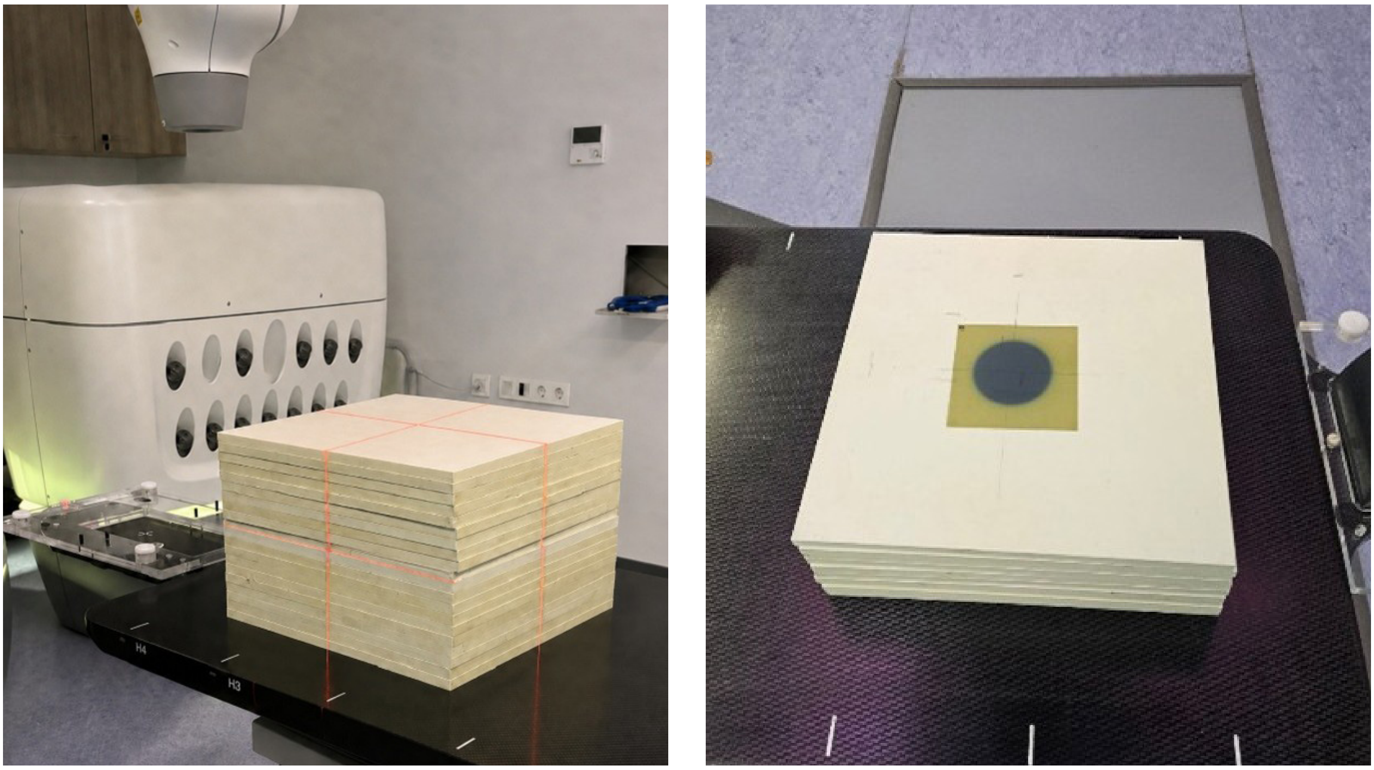


Figure 1. (a) Measurement setup in practice. (b) Irradiated film by a machine specific reference field for reference dose verification purposes

porting institutional readiness for audits, accreditation processes and regulatory expectations.

Scientific credibility was a central principle during the development of successREF. The service combines calibrated Optically Stimulated Luminescence Dosimeters (OSLDs) and Gafchromic EBT4 film dosimetry within a dedicated water equivalent phantom geometry. All detectors are calibrated in a Secondary Standard Dosimetry Laboratory (SSDL) with traceability to primary standards (BIMP France). The methodology incorporates internationally recognised reference dosimetry recommendations, including IAEA TRS – 398 and TRS - 483 for reference conditions, AAPM TG-191 guidance for OSL dosimetry and established protocols for radiochromic film analysis. Appropriate correction factors have been determined by RTsafe's medical physics team and are applied whenever necessary. RTsafe provides the dosimeters, while the participating centre performs irradiations under reference conditions using a standard setup. The audit can be applied to standard C-arm linear accelerators, CyberKnife systems and Tomotherapy/Radixact platforms.

Aliki Stergiou is a Medical Physicist/Physics Engineer. Aliki executes current worldwide projects at RTsafe and is responsible for monitoring and supporting research and other hospital projects across Greece. She holds an Applied Mathematical and Physical Sciences diploma from the National Technical University of Athens (NTUA) and two Master's degrees, one in Medical Physics from the National and Kapodistrian University of Athens. Aliki has a strong interest in dosimetry audits and data analysis, aiming to develop her expertise in medical physics.

Trials and Tribulations: Operational and Methodological Challenges of Dosimetry in Radiopharmaceutical Therapy Clinical Trials

Introduction

Radiopharmaceutical therapies (RLTs) have emerged as a major pillar of oncology drug development, with the potential for favourable efficacy–toxicity trade offs. Central to this is dosimetry: the quantitative link between administered activity, biodistribution, absorbed dose, and biological effect. In principle, dosimetry provides the mechanistic foundation for rational dose optimisation, individualised treatment, and ultimately improved clinical outcomes. In practice, however, the implementation of dosimetry within clinical trials presents a complex web of scientific, operational, regulatory, and logistical challenges.

While early phase studies may leverage dosimetry to characterise pharmacokinetics and absorbed dose distributions, its role can diminish as programmes progress toward pivotal trials. This article provides a sponsor side perspective on the trials and tribulations of incorporating dosimetry into RLT clinical studies.

The Role of Dosimetry Across RLT Clinical Development

Fundamentally, dosimetry seeks to link administered radioactivity and biological effect through understanding biodistribution, kinetics, and absorbed dose. In early development, such as first in human (FIH) studies, dosimetry plays a key role in de risking novel radioligands and selecting those for further development. Dosimetry supports the definition of cumulative activity limits, informs decisions on dosing intervals and number of treatment cycles and guides Phase 2 design, reducing uncertainty around safety margins. However, in later phase studies, the feasibility of comprehensive dosimetry becomes increasingly challenging. Patient burden, site capacity, cost, and variability across centres all confound attempts to acquire this data. Consequently, many RLT programmes restrict dosimetry either to earlier phases or sub-studies on select patients. This is despite its potential utility.

From a sponsor standpoint, the question is not whether dosimetry is scientifically valuable, but rather how it can be implemented in a way that is operationally feasible, regulatorily defensible, and commercially viable. Incorporating dosimetry into a clinical trial begins at study design. It must balance competing factors, including scientific rigour, patient and site burden, recruitment feasibility, cost, and regulatory expectations. Each additional imaging timepoint represents additional expense and complexity for sites and patients alike.

Once these questions have been considered, the effort switches to implementation. Equipment qualification is critical. PET/CT and SPECT/CT systems, radionuclide calibrators, and gamma counters all require study specific qualification to ensure traceable and reproducible measurements.

Establishing radioactivity traceability across sites, manufacturers, and equipment models is essential, yet complicated by differences in hardware, software versions, and calibration practices.

Initiatives such as the EANM Research Ltd (EARL) accreditation programme offer valuable frameworks and are increasingly relied upon to ensure harmonisation. As the range of radionuclides utilised in RLT expands it is important that these programmes expand alongside. Without these, sponsors must develop their own calibration strategies which are scientifically robust and reasonably practical to implement across sites.

Dosimetry in regulated studies must be strictly protocol driven. Regulatory requirements for dosimetry vary across territories, complicating the development of harmonised global protocols. What may be considered best practice in one jurisdiction may be viewed as excessive or insufficient in another. For sponsors running multinational trials, this heterogeneity poses a significant challenge, often necessitating compromises to satisfy minimum requirements across regions rather than optimising for scientific completeness. The involvement of multiple specialist vendors, while often unavoidable, introduces additional potential failure points and sources of uncertainty within studies.

Regulators increasingly scrutinise dosimetry data, particularly as such data may ultimately inform prescribing information or summaries of product characteristics. From a sponsor perspective, this elevates dosimetry from an exploratory exercise to a dataset that must withstand careful review from authorities. However, there are elements which continue to suffer from large variance between studies.

Tumour Dosimetry: The Challenge of Selection

While organ dosimetry is comparatively well established, tumour dosimetry introduces a distinct set of challenges. Many patients enrolled in therapeutic trials present with multiple metastatic lesions, raising the question of which tumours should be selected for dosimetric analysis. From a sponsor perspective, tumour selection criteria must balance practicality, generalisability, and utility. Instructions must be sufficiently simple to be followed consistently, yet robust enough to minimise subjective interpretation. Selection criteria can introduce scanner bias or preferentially sample certain lesion characteristics, undermining the comparability of results across sites and studies. There is also a need to consider whether selected tumours are truly representative of overall disease burden, and whether calculated absorbed doses will meaningfully correlate with other efficacy endpoints.

Tumour Dosimetry: Contouring and Methodological Variability

Contouring represents another major source of variability in tumour dosimetry. Limited anatomical contrast, partial volume effects, and complex lesion morphology all complicate the delineation of volumes of interest. Sponsors must prospectively define contouring methodologies that are practical, repeatable, and suitable for multi centre application.

Reported methods in the literature range from manual contouring using anatomy to activity guided approaches and automated threshold based techniques. No clear consensus has emerged regarding a best method, and comparative analyses suggest that contouring choices have a substantial impact on calculated tumour absorbed doses.

This variability complicates cross study comparisons and underscores the need for transparency and consistency in reporting.

Conclusions and Future Perspectives

Dosimetry remains a cornerstone of the scientific rationale underpinning radiopharmaceutical therapy, yet its implementation within clinical trials is fraught with challenges. From study design and site selection to tumour contouring and data verification, dosimetry demands a level of operational sophistication that exceeds that of many conventional oncology trials.

For sponsors, the future lies not in abandoning dosimetry, but in deploying it strategically. Early phase studies offer valuable opportunities to leverage dosimetry for asset de risking, while selective incorporation into later phase trials may provide insights into variability and optimisation without overwhelming operational complexity. Greater harmonisation of methodologies, clearer reporting standards, and continued collaboration between sponsors, physicists, and regulators will be essential if dosimetry is to fulfil its promise in the next generation of RLT development.

Ben Fongenie is a medical physics expert and senior radiation scientist working on translational projects for Blue Earth Therapeutics

Nat Scott is a medical physics expert and senior radiation scientist working in clinical development for Blue Earth Therapeutics

Unified by Design: Bringing the Best of AutoContour and Limbus Contour Together to Advance Treatment Planning Workflows

Evolving the Role of Automation in Contouring
Contouring remains one of the most time-intensive and variable steps in radiotherapy planning. Differences in clinician experience, time constraints, and increasing case complexity can all contribute to variability in structure delineation, with downstream implications for planning consistency and efficiency.

Unified by Design
Significant development effort has been undertaken to unify AutoContour and Limbus Contour into a single, cohesive platform – AutoContour v2.7. This latest release harmonizes models, workflows, and system architecture to leverage the strengths of both solutions while reducing redundancy. The result is a more robust, scalable, and clinically aligned platform that establishes a strong foundation for ongoing innovation.

What's New:
While workflows remain unchanged, AutoContour v2.7 introduces several key advancements:

- Expanded model library with 480 AI-trained models across CT, MR, and CBCT, including significantly broader lymph node coverage
- Parallel processing and multi-machine scalability to support higher throughput
- Web-based Zero-Click dashboard for department-wide visibility and control
- Enhanced workflow flexibility, including vendor-neutral DICOM and ESAPI integration with Eclipse

Expanded Model Library and Standardization
The platform includes a comprehensive library of 480 AI-trained models, representing a significant expansion compared with earlier Limbus Contour and AutoContour versions. This includes broader anatomical coverage, enhanced lymph node modelling, and support for additional clinical use cases.

Models are developed in alignment with established international contouring guidelines, including DAHANCA, CTG, EORTC, ESTRO, GORTEC, HKNPCSG, NCIC, NCR, NRG, RADCOMP, RTOG, TROG, and others. Combined with AAPM TG-263 nomenclature, this ensures consistent, standardised, high-quality contours across clinicians, sites, and clinical workflows.

Comprehensive AI model coverage across all major anatomical regions, supporting standardised contouring across CT, MR, and CBCT workflows.

Clinical and Operational Considerations
AutoContour v2.7 integrates seamlessly into existing clinical environments through treatment planning system integration, including ESAPI scripting with Eclipse, as well as vendor-neutral DICOM workflows.

A Zero-Click automation framework applies configurable matching rules to ensure that appropriate

Head

84 OAR Models
49 Lymph Node Models

- Full cranial and soft tissue coverage
- Detailed nodal levels (IA–VII)
- Guideline-aligned variants (DAHANCA, EORTC, HKNPCSG, NCIC, CTG, NCRI, RTOG, TROG)

Chest

47 OAR Models
57 Lymph Node Models

- Cardiac, lung, breast, and vascular structures
- Axillary, supraclavicular, and internal mammary nodes
- Multi-guideline support (RTOG, ESTRO, RADCOMP, UK SABR)

Abdomen

25 OAR Models
1 Lymph Node Model

- Gastrointestinal and upper abdominal organs
- Liver, pancreas, kidneys, and bowel structures
- Designed for multi-site planning workflows

Pelvis

115 OAR Models
13 Lymph Node Models

- GU, GI, and reproductive structures
- HDR and prostate workflows
- Pelvic nodal coverage and variants

CBCT Models	7 Models	MR Models	62 Models (T1 & T2)	Multisite Models	58 Models

models are selected and executed automatically. Parallel processing enables faster contour generation, while the updated web-based dashboard provides real-time, department-wide visibility into workflow status and system activity.

Extending Beyond Contour Generation

AutoContour v2.7 extends beyond structure delineation to support additional planning workflows, including:

- Advanced structure creation toolkit powered by Boolean operations
- Automated generation and refinement of margins, rings, overlaps, and cropped structures
- Rigid and deformable image registration
- Dose evaluation for adaptive and re-irradiation scenarios

Deformed dose can be further analysed within ClearCheck, including cumulative dose assessment using BED and EQD2 tools. These capabilities are integrated within a single platform, reducing reliance on multiple systems and supporting more streamlined workflows.

Supporting Consistency Across Clinical Environments

As radiotherapy services continue to expand across multi-site networks, maintaining consistency in contouring practices becomes increasingly important. AutoContour v2.7 supports this through standardised model application, shared templates, and guideline-aligned outputs, enabling reproducibility across users and institutions.

Intelligent Automation for Modern Workflows

AutoContour v2.7 reflects the latest milestone in a continued shift towards the integration of AI within routine clinical workflows. By combining the trusted foundation of Limbus Contour with the expanded capabilities of AutoContour, the platform supports a more consistent, efficient, and scalable approach to contouring, while maintaining the central role of clinician oversight in treatment planning.

If you are interested in learning more about AutoContour, you can schedule a demo here.

Yvette Wilbur, MS, is a seasoned radiation oncology specialist with over 40 years of clinical and corporate experience. She helped establish Botswana's first oncology department and has held key roles at Elekta, Velocity, and Varian. She is currently Senior Global Product Marketing Manager at Radformation, advancing AI-driven solutions to improve efficiency and standardisation in radiotherapy. Yvette is also an ambassador for Radiotherapy UK and serves as Vice Convenor of the AXREM Marketing Special Focus Group in the UK.

AAPM Summit: Empowering Medicine through Physics

Figure 1. Attendees at the AAPM Summit Empowering Medicine through Physics

On February 10–12, 2026, I represented EFOMP at the AAPM Summit entitled *"Empowering Medicine through Physics"* in Washington, D.C. The summit's purpose was stated *"to unite the medical, scientific, and technological communities in a shared commitment to accelerate advances in patient outcomes and care delivery over the next decade"*.

This high-level "think-tank" convened 59 invited experts, including a select delegation from Europe. The summit gathered medical physics leaders, medical specialists in fields such as radiology and pathology, and scientists in biomedical engineering, informatics and AI. An important contribution was the presence of major regulatory and national bodies, including the FDA, NCI, NIST, alongside professional organizations like AMA, ACR, ASTRO, and SNMMI.

The summit was introduced with four inspiring presentations, setting the scene for interactive sessions. The first task was to assemble ideas for future-facing themes, which were assembled into six strategic focus areas for group work.

According to plans, the AAPM is intending to publish a meeting summary.

The Key Priorities identified by the AAPM were:
Precision Therapies: Advance quantitative standards and dosimetry to enable safe, personalized treatments linked to outcomes.

AI in Clinical Practice: Establish frameworks for evaluation, monitoring, and safe deployment of AI across real-world healthcare settings.

Regulatory Innovation: Modernize regulatory pathways using real-world data, simulation, and scalable evaluation methods.

Expanding Impact: Extend physics expertise into emerging areas such as pathology, surgery, and integrated health data systems.

Workforce of the Future: Build a dynamic, adaptable workforce through modernized education, cross-disciplinary training, and stronger research infrastructure.

Trust and Professional Leadership: Strengthen trust through transparency, patient-centred care, and clear scientific leadership in medicine.

Personal reflections

I was struck by the conviction amongst attendees that medical physics will need to embrace AI and computer science as parts of their professional responsibilities, taking leadership in its technical and ethical integration. There is thus an ongoing shift toward merging medical physics with analytics and informatics.

I was contemplating on whether the core subjects for medical physics will need to change. The most challenging, in my opinion, is then which parts to remove from the syllabi of medical physics education and training, unless this is expanded to allow time for new topics. I agree that medical physicists have a special role in their general capability as problem-solvers. However, with regards to education and clinical training, I believe we need to carefully analyse before introducing new fields, to balance the risk of dilution of our core topics. Possibly for the future, training in computer science may grow into a new medical physics specialisation.

Another prominent theme was theragnostics, which was recognised in its need to be embedded in its full extent in the medical physics syllabi. The inclusion of FDA and NIST representatives underscored the increasing importance of metrology, standardization, and quality assurance, not least in the current era of AI growth. Interdisciplinary work will be imperative for medical physics, as frontiers in medicine are no longer found in silos.

In summary, I found the "think-tank" format interesting, refreshing and challenging. It was brave in the sense that it placed medical physics in the centre, with different kinds of expertise gathered around, for the purpose of shaping and prioritising the medical physics future. I wish to express my sincere gratitude to AAPM, EFOMP and SIGFRID for the invitation to attend this meeting.

References:

Empowering Medicince Through Physics

Since 2017 full professor in medical physics, Lund university, received her PhD in 2001. Worked until 2011 as clinical medical physicist and in academia, with research in molecular radiotherapy and clinical trials. She is also study director of medical physics and supervises PhD students in medical physics and oncology.

Meet the New EFOMP Early Career SIG Steering Committee

When a Journey Reaches Maturity

Following the recent elections, we are excited to introduce the new Steering Committee of the EFOMP Early Career Special Interest Group (EC SIG). As a group representing early-career medical physicists across Europe, we believe that building connections and creating opportunities for collaboration are essential for the future of our profession.

With this article, we would like to introduce ourselves to the community, share a little about our backgrounds and interests, and present our vision for the coming years. Our new committee brings together members from different countries, professional experiences, and research areas, united by the common goal of strengthening the early-career medical physics community in Europe.

Matteo Galetto
Convenor

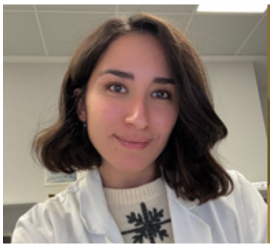
I am a clinical medical physicist at the Policlinico Universitario A. Gemelli in Rome, where I have spent the past three years working in radiotherapy, with a particular focus on MR-Linac and C-arm linacs. Alongside my clinical work, I have always enjoyed mentoring and research, especially in quantitative MRI for imaging biomarkers and in vivo dosimetry. I have been involved with SIG_FREC since its launch in 2022, and it has been a truly rewarding experience to see how much can be achieved when motivated young medical physicists work together across Europe. I am excited to join the committee because I strongly believe in building connections, creating opportunities, and giving early-career colleagues a stronger voice. I hope to be a reference point for collaboration with NMO young groups and for initiatives that support professional mobility, exchange, and growth. Outside the hospital, I love spending time in the mountains, especially walking and skiing, and I also enjoy riding my motorbike and planning my next trips. For me, this committee is not only about professional commitment, but also about sharing enthusiasm, ideas, and a genuine desire to help our community grow.

Maria Steinberger
vice-convenor

My name is Maria Steinberger, I am Head of Medical Physics at the Department of Radiology, LMU University Hospital Munich. Together with my team, I oversee and optimize radiation exposure for more than 210,000 diagnostic examinations and interventional procedures per year, covering over 80 imaging systems, including computed tomography, angiography, fluoroscopy, X-ray, and mammography. My responsibilities include radiation protection, dosimetry, quality assurance, and regulatory compliance, ensuring safe and reliable imaging for both patients and staff. My research is driven by close interdisciplinary collaboration, with a focus on applied medical imaging physics as well as the safe and effective deployment of AI in radiology workflows.

Curious about the bigger picture, I pursued an MBA in Health Administration; a perspective I now bring to questions of career development, leadership, and how medical physics fits into the wider healthcare system. Outside of work, I enjoy gravel bike tours and padel tennis.

I am excited to help shape the future of medical physics in Europe, guided by the belief that growth happens at the intersections; between disciplines, between countries, and between generations.



Virginia Piva
secretary

My name is Virginia Piva and I am a final-year medical physics resident in Italy. My main professional interests are automation in radiation therapy, quantitative imaging, and the safe and effective implementation of AI in clinical practice. While I enjoy clinical work, I am particularly passionate about research and development in the field of medical physics, which I find extremely fascinating!

For the upcoming term, I will serve as Secretary of the EFOMP Early Career SIG. In addition to this role, I am the External Relations Officer of the Young Cancer Professionals Steering Committee of the European Cancer Organisation, and I am also part of the EFOMP Communication and Publications Committee.

Outside of my professional activities, I am passionate about science communication and use social media to share scientific insights and educational content. In my free time, I enjoy spending time in nature, especially hiking, skiing, and sailing.
With this new committee, I hope to help young medical physicists connect with one another, discover shared interests, and build meaningful collaborations across Europe. I am always open to new ideas and suggestions to make everyone feel involved and actively engaged in the group!

Miia Hurskainen

I am recently graduated a medical physicist expert (MPE) from Joensuu, Finland. Currently I work in radiation therapy at the Cancer Center in North Karelia Central Hospital. I completed my residency working across different hospitals in Finland. I am interested in cancer treatment including radiation therapy and theranostics. I received my Doctor of Philosophy degree from University of Eastern Finland. I studied near-infrared and surface-enhanced Raman spectroscopy in salivary diagnostics.

In my free time I like to explore the nature in many ways. I run trails, ride my gravel bike and swim in open waters. I am retired national level swimmer. As summers are quite short in Finland and open waters cool down I like to do ice swimming as well. I am current Finnish Winter Swimming vice-champion in 50 breaststroke and I participated world championships in Oulu!

Joining EC SIG Steering Committee for me is very exciting as I am representative for young physicists in Finnish Association of Medical Physicists (FAMP). I want to give voice to young generation of physicist and advance opportunities in medical physics education. I believe in collaboration and saying yes to new opportunities. I have already presented EC SIG at cross young generation bringing together young professionals from other fields of nuclear science and radiation protection.

Henriëtte Kuipers

My name is Henriëtte Kuipers and I recently joined the Steering Committee of the Early Career SIG. I am currently working as a general medical physics resident in Zwolle, The Netherlands.
My interests are quite broad, including in vivo fluorescence imaging, magnetic resonance spectroscopy (MRS) in newborns with asphyxia, and optimalization projects in the IVF lab. I enjoy working on different topics and connecting research to clinical practice.

In my free time, I like to spend time with friends and family. And when the Dutch weather allows it, you will find me on a boat or near the water!
Within the Steering Committee, I will be actively involved in upcoming activities, including ECMP 2026 and 2028. I expect to be closely involved in the 2028 edition in Rotterdam. More generally, I am always open to new ideas and initiatives. So please feel free to reach out!
I am looking forward to the coming period!

Looking Ahead

As a new Steering Committee, our main goal is to build an active, collaborative, and welcoming community for early-career medical physicists across Europe. We believe that the future of medical physics don't only depends on scientific and technological innovation, but also on the connections we create between people, institutions, and countries. In the coming years, we hope to promote networking opportunities, educational initiatives, collaborations with national young groups, and projects that encourage professional growth and international exchange. Most importantly, we want the EC SIG to be a space where everyone feels involved, represented, and encouraged to contribute. We are always open to new ideas, suggestions, and initiatives. Whether you would like to collaborate on a project, propose an activity, or simply get in touch, we encourage you to reach out to us (sc. sig_frec@efomp.org). We are excited for this new chapter and look forward to growing the EC SIG community together.

How to Become a SIG_FREC Member

SIG_FREC is open to young Medical Physicist professionals. Membership is available to all EFOMP members. Instructions for joining can be found on the SIG_FREC page of the EFOMP website: SIG_FREC Membership

Virginia Piva is a Medical Physics Resident at Niguarda Hospital in Milan and research fellow in particle therapy at the National Institute for Nuclear Physics. Her main professional interests are advances in radiotherapy and implementation of AI techniques in the clinic. Alongside the residency, she is committed to promoting public understanding of medical physics, using science communication to spotlight the field's value. She joined the C&P Committee in 2024.

Suspension Levels in Dental Imaging: Room for Debate

An Update from the Special Interest Group 'Dental Imaging'

In 2024, EIBIR, in cooperation with EFOMP, EANM Research Ltd., and ESR, was awarded the European Commission Tender "SAMIRA Study on Criteria for Acceptability of Medical Radiological Equipment" (CARE). The CARE project kicked off in November 2024 and will conclude in November 2026. Its objective is to update the European Commission's RP 162 publication, originally released in 2012 [1]. The revised document is expected to influence practice within EU Member States and beyond, as shown by a recent survey on adherence to EC RP 162 [2].

Figure 1. The CARE project

At the time of writing, an updated list of acceptability criteria has been prepared and will be presented during a project workshop on 1–2 June 2026 in Luxembourg. Throughout the process that led to this point, which included a review of relevant literature and standards, internal discussion (including informal discussions held within the Dental Imaging SIG), and a consultation round involving Member States and other stakeholders, several pertinent areas of discussion were identified. This opinion piece highlights selected issues related to acceptability criteria and suspension levels in dental imaging that remain open to debate. Regardless of how these topics are reflected in the final EC document, future work in the field should focus on providing further evidence, clarification, and consensus regarding these topics.

Unacceptable equipment

RP 162 defined film classes lower than E and circular collimators for intra-oral equipment as unacceptable, unless 'special justification' was made. References to an IEC document from 1994, as well as RP 136 from 2004, indicate that these considerations were quite established at the time of publication. Thus, one could argue that a contemporary document should take a more hardline stance on these topics, e.g., by considering film classes below F as well as circular collimation as unacceptable, without exceptions. However, a counter-argument would be that such a stance should be supported by authoritative documents, such as international standards or (inter)national regulations. This raises a 'chicken or egg' problem, which is found for other topics in this article as well: for any disruptive change in practice, should the initiative come from documents like RP 162 and its successor, or from standards and regulations?

Dosimetry

For dental cone-beam computed tomography (CBCT), RP 162 proposed a suspension level based on the dose-area product (DAP), using the concept of 'achievable dose' introduced by the UK HPA in 2010 [3]. The document hints at the fact that diagnostic reference levels (DRLs) at some point should be used instead to define relative suspension levels (e.g., 2xDRL value). In recent years, several countries (including a few EU countries) have indeed established DRLs for CBCT, as shown by a recent review [4]. However, the wide variety found between DRL values from different countries, the inherently wide dose range found in CBCT, as well as limitations regarding the practical application of DAP-based DRLs (incl. their energy-dependence, field of view-dependence and indication-dependence) raises some concerns regarding the usefulness of a suspension level for CBCT based on a DRL value. While it makes sense to strive for a dosimetry-based suspension level, it may be needed to reach a higher level of evidence and methodological harmonization before such a level can be defined in a manner that is neither too conservative nor too restrictive.

As for other dental imaging modalities, RP 162 suggests a suspension level of >4 mGy (incident dose to air) for intra-oral radiography; at this point, this can be considered a 'legacy value' and it can be assumed that it is too lenient to have real practical value. Furthermore, the 'chicken and egg' problem is apparent here as well, i.e., where should the initiative to lower this value come from? In addition, a transition to DAP could be considered, as this index is used more and more to establish DRLs, and it would make sense to have DRLs and suspension levels both be based on the same metric. The same argument can be made for cephalometric radiography, with RP 162 proposing suspension levels for incident air dose, and DRLs being mostly based on DAP nowadays.

For panoramic radiography, a suspension level of >100 mGy.cm^2 was set in RP 162 (in terms of measured or calculated DAP). Based on DRL dose surveys published since then, it would seem that this value should be reconsidered: for example, in South Korea, DRLs are 3.5 times higher than this suspension level for adults (and 2.2 times for children) [5]. In public hospitals in Cyprus, local DRL values were also found to be above this suspension level [6]. The definition of a reasonable suspension level for panoramic radiography is complicated by the fact that different dose metrics are used in practice (entrance surface dose, dose-width product, and DAP), which restricts intercomparison.

Image quality in CBCT

While specific image quality suspension levels for 2D dental radiographic modalities were not included in RP 162, it does propose image quality levels for CBCT based on noise, spatial resolution, image density and artefacts. For noise and image density, the aforementioned HPA document is used as a source, as well as the Institute of Physicists and Engineers in Medicine's Report 91 from 2005 [7]. For spatial resolution, a German guideline from 2004 is used as reference [8]. Therefore, it is safe to say that an update is in order for each of these image quality metrics, tailored to the range of CBCT systems that are currently available, and to the range of image quality requirements found in dental practice. However, for the update of RP 162, a general decision was made not to use relative suspension levels that are based on a baseline value measured during commissioning. On the other hand, absolute image quality-based suspension levels are very difficult to define for CBCT. Noise values depend on the effective grey value range of a scan as well as the voxel size; while the former can be accounted for by using contrast-to-noise ratio instead, the latter is more difficult to correct for, which can result in a bias against high-resolution scans. A second argument against an explicit noise measurement is that, when noise is increased due to a reduced tube output, the measurement of the tube output itself can be used as the primary criterion for action or suspension. Furthermore, while it can be assumed that older equipment (e.g., image intensifier-based detectors) have higher noise values, the relation between noise and diagnostic acceptability highly depends on the clinical task, and is relatively underexplored. A similar argument can also be made for spatial resolution; in addition, RP 162 defines a suspension level specifically for 'high resolution mode', which can leave some room for ambiguity. All of these considerations lead to the question whether one can reasonably define a suspension level for CBCT, based on noise, contrast, sharpness or a combination thereof, that transcends the inherent variability between vendors and indication-specific protocols, and can be linked to diagnostic acceptability. For image density, one can argue that it should not be assessed at all, as long as the manufacturer does not make any claims regarding Hounsfield Unit (HU) calibration; if they do, one can apply the same HU accuracy criteria that are used for CT, but this should ideally be enforced at the IEC level. Finally, for artefacts, instead of an explicit suspension level, RP 162 stated that any artefacts likely to impact clinical diagnosis should lead to suspension. While this is a sensible criterion, it can arguably be applied to all modalities, and may not need to be specifically stated for CBCT alone.

Conclusion

This opinion piece attempts to highlight a number of discussion topics pertaining suspension levels in dental imaging, with some of the issues transcending suspension levels and affecting other aspects of QA as well. Potential long-term solutions include an increased intercommunication between stakeholders, harmonization of key methodological aspects, and pooling of quantitative data (e.g., QC reports, dose surveys) at a European level.

References:

[1] European Commission: Directorate-General for Energy, Criteria for acceptability of medical radiological equipment used in diagnostic radiology, nuclear medicine and radiotherapy, Publications Office (2012). DOI: https://data.europa.eu/doi/10.2768/22561

[2] M. Brambilla et al., SAMIRA study on criteria for acceptability of medical radiological equipment (CARE). Survey results on European Union national legislations/regulations, Physica Medica 145, 105798 (2026). DOI: https://doi.org/10.1016/j.ejmp.2026.105798

[3] HPA-CRCE-010. Guidance on the Safe Use of Dental Cone Beam CT. Oxfordshire: Health Protection Agency (2010).

[4] H. Trindade et al., Diagnostic reference levels for dental cone-beam computed tomography: current state and way forward, Physica Medica 137, 105072 (2025). DOI: https://doi.org/10.1016/j.ejmp.2025.105072

[5] J.E. Kim et al., National dose survey and discussion on establishing diagnostic reference levels for dental imaging in Korea, Dentomaxillofacial Radiology 54, 364-370 (2025). DOI: https://doi.org/10.1093/dmfr/twaf014

[6] V.I. Metaxas et al., Establishment of diagnostic reference levels for quality control in panoramic radiography at public hospitals in Cyprus, Radiation Protection Dosimetry 201, 1220-1230 (2025). https://doi.org/10.1093/rpd/ncaf108

[7] Institute of Physicists and Engineers in Medicine. Recommended Standards for the Routine Performance Testing of Diagnostic X-Ray Imaging Systems, Report 91. York: Institute of Physicists and Engineers in Medicine (2005).

[8] Bundesregierung BRD. Richtlinie zur Durchführung der Qualitätssicherung bei Röntgeneinrichtungen zur Untersuchung oder Behandlung von Menschen - Qualitätssicherungs-Richtlinie (QS-RL). Gemeinsames Ministerialblatt. Nr. 37-38 (2004).

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Ruben Pauwels is an Associate Professor at the Department of Dentistry and Oral Health at Aarhus University, Denmark. His work focuses on dental imaging, radiation protection, and AI-based imaging applications. He contributes to international initiatives on quality assurance, dosimetry, and optimisation.

Report from the IAEA Technical Meeting on AI and Radiation Protection in Medicine

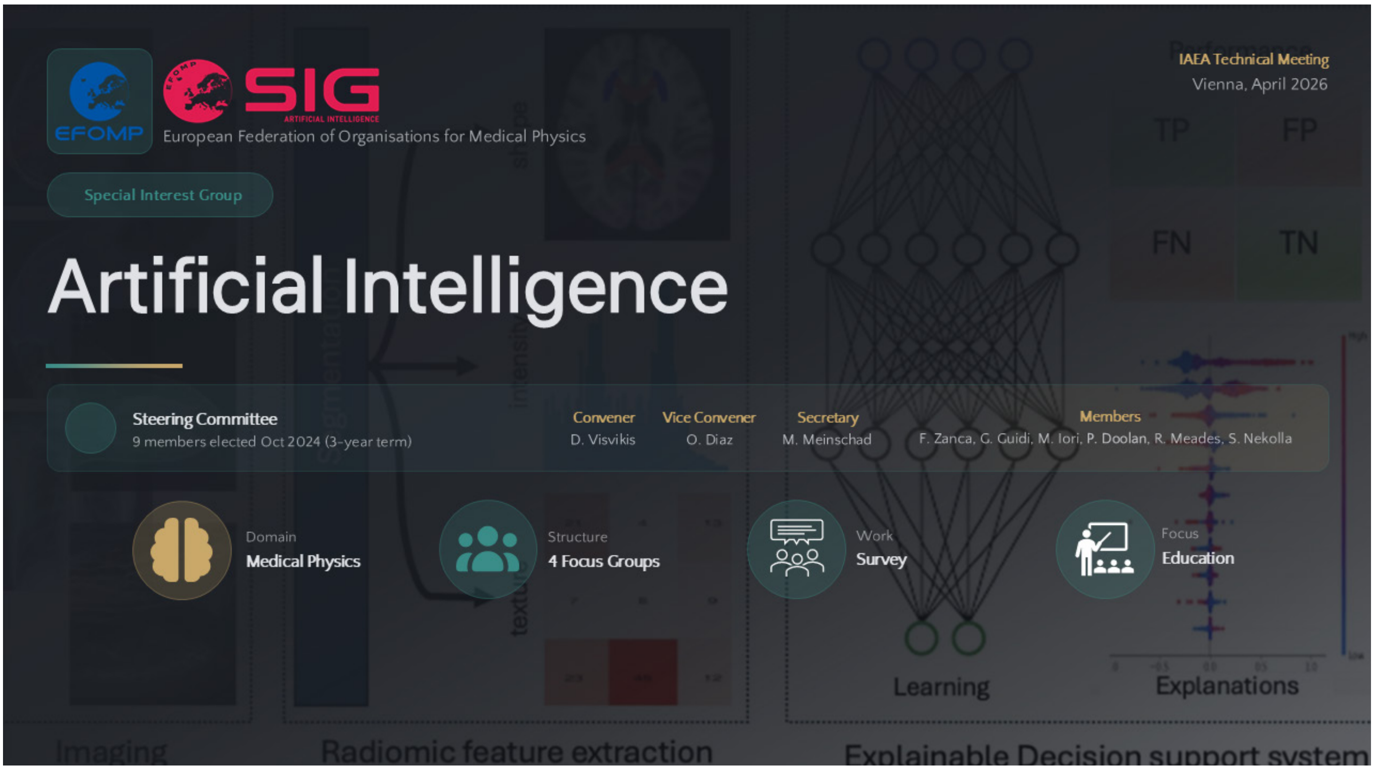

Figure 1. EFOMP SIG in Artificial Intelligence presentation during IAEA Technical Meeting

The International Atomic Energy Agency (IAEA) convened a Technical Meeting on Artificial Intelligence and Radiation Protection in Medicine at its Vienna headquarters from 8 to 10 April 2026. Fourteen sessions across three days brought together the IAEA, the European Commission and major international and European professional organisations including EFOMP, the IOMP, the EANM, the ESR, the ESTRO, the ISR, the ISRRT, EURADOS and HERCA. EFOMP was represented by Paul Doolan of its Artificial Intelligence Special Interest Group.

Day 1 opened with framing presentations from the international organisations. Several societies announced new structures: EANM is establishing an AI Committee that will work closely with its Radiation Protection Committee and publish a joint position paper; ISRRT will convene a new AI working group in April 2026 to review its 2020 Joint Statement with EFRS in light of large language models, generative AI and agentic AI; and the ESR AI Act Working Group has published its AI Act Statement, arguing that radiological AI requires oversight by medically trained regulators with expertise in both radiology and AI.

The IAEA presentations on Day 1 outlined a multi-year medical physics programme: an updated curriculum mapped to five AI competence levels, a 12-episode Webinar Series on AI for Medical Physicists running from October 2025 to April 2026, and the 2026 Joint ICTP-IAEA Workshop on the clinical implementation of imaging-based AI systems. The session's headline announcement was the publication of IAEA Human Health Series No. 50, Clinical Implementation of Artificial Intelligence Systems in Medical Imaging and Radiotherapy: Guidelines for Medical Physicists, endorsed by EFOMP (alongside AAPM, ACPSEM, ESTRO, FAMPO, IOMP and ALFIM). The publication structures the implementation of clinical AI into ten lifecycle stages from identification of organisational needs through to decommissioning.

In the AI Foundations session, Mika Kortesniemi (HUS, Helsinki) placed training data, rather than algorithm choice, at the centre of clinical performance and safety. After a comparison of real-world, dedicated and synthetic data sources, he warned that models and data can "cheat", and called for independent commissioning of clinical AI systems on relevant populations. Georg Langs (Medical University of Vienna) reported that AI has reached clinical radiology routine across workflow, reconstruction, automation, quantification, decision support and clinical records.

Day 2 turned to optimisation and governance. John Damilakis (University of Crete) presented automated tools for establishing diagnostic reference levels in interventional radiology and for auditing CT examinations. Ehsan Samei (Duke) argued for a holistic view of protection in which clinical risk falls and radiation risk rises with imaging dose, but the converse is true with lower imaging doses – so the optimum sits at a non-trivial dose level. Filip Maksan (European Commission, DG ENER) described a regulatory triad of the Medical Device Regulation, the AI Act and the Basic Safety Standards Directive, noting that no standalone framework exists for AI in radiation protection. A University Hospital Leuven case study set out the practical limits of the MDR in-house exemption for hospital-developed AI tools. Day 3 closed with sessions on implementation, occupational exposure and the translation of evidence to practice. A Coordinated Research Project in 2027 will test the recommendations of Human Health Series No. 50 in clinical settings, and an IAEA e-learning course on AI for medical physicists is scheduled for 2026.

How to become a SIG_ARTIFICIAL_ INTELLIGENCE member

SIG_ARTIFICIAL_INTELLIGENCE is open to professionals interested in AI application in Medical Physics. Membership is available to all EFOMP members. Instructions for joining can be found on the EFOMP website: SIG_ ARTIFICIAL INTELLIGENCE Membership

Paul Doolan is Director of AI at the German Medical Institute in Cyprus. A radiotherapy physicist by background, he serves on the EFOMP Artificial Intelligence Special Interest Group and represented EFOMP at the IAEA Technical Meeting on Artificial Intelligence and Radiation Protection in Medicine in Vienna in April 2026.

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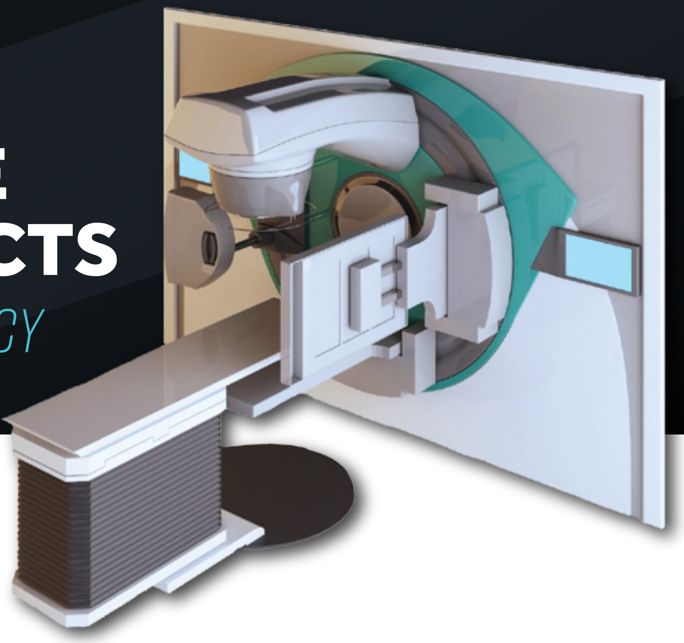

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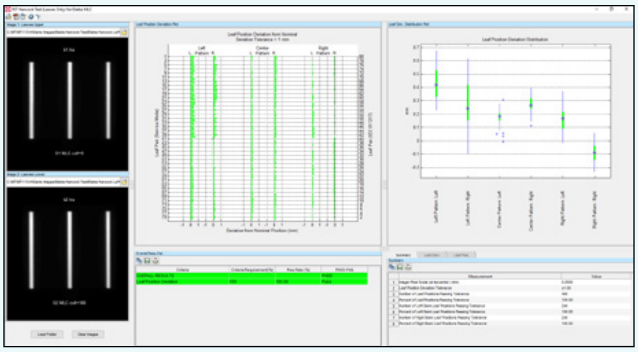

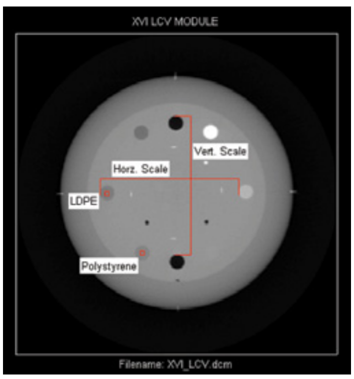

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Impact of Reconstruction Algorithm and Beam Parameters on 3-D Localization Precision with Focus Stacking Approach in Single Particle Tracking Radiography

Despite the physical dose distribution advantages in particle therapy (PT), range uncertainties – variations of Bragg peak position due to changes in patient anatomy, positioning, physiological motion and treatment workflow itself – remain as one of the limiting factors to reach the full potential of this radiotherapy modality. Usefulness of conventional X-ray imaging is limited to tackle this challenge due to different physical interactions compared to treatment beam. Thus, particle radiography (i-Rad) has been researched as specialized imaging method for PT verification, using high energy beams of protons or helium ions traversing the patient and allowing estimation of relative stopping power (RSP) [1-2]. Acquired 2-D maps of water-equivalent path length (WEPL) allow more precise PT pre-treatment verification and could reduce range uncertainties.

While several challenges exist for technological implementation of i-Rad into clinical use [1], recently proposed use of focus stacking (FS) approach in i-Rad image reconstruction algorithms can enable unique use of this modality – 3-D localization by a single planar 2-D image [3,4]. FS approach can significantly improve image quality in i-Rad, while providing additional information for even more precise patient position verification. Presented Monte Carlo (MC) simulation study further explores this approach by evaluating the impact of particle type, particle energy and reconstruction algorithm parameters on quantitative image quality improvement and 3-D localization precision.

16 x 16 x 16 cm^2 water phantoms were simulated with high contrast inserts – 2 x 2 x 2 cm^2 large aluminium cubes spread laterally and centred at depths of 2, 8 and 14 cm. For imaging protons of energies 250, 330, 400, 500, 600 and 700 MeV were considered, while also assessing 220 MeV/u helium-4 ions. Uniform intensity field of 10x10 cm was used, while considering realistic beam energy spread and divergence. Idealized detector volumes were simulated at the front and rear surfaces of the phantom, scoring particle positions, momentum direction angles and outgoing particle energy, while also implementing ΔE-E filter as per [5] for helium-4 scenario. 107 primaries were simulated.

Prior to image reconstruction 3σ energy and relative angle cuts were applied. Most likely path formalism (MLP) [6] was used for image reconstruction, accounting for curved particle trajectories due to Multiple Coulomb scattering. For implementation of FS, single particle data were binned with 0.2 mm resolution, while varying depth of reconstruction plane in 1 mm increments. Stack of i-Rad images was then processed via two FS approaches:

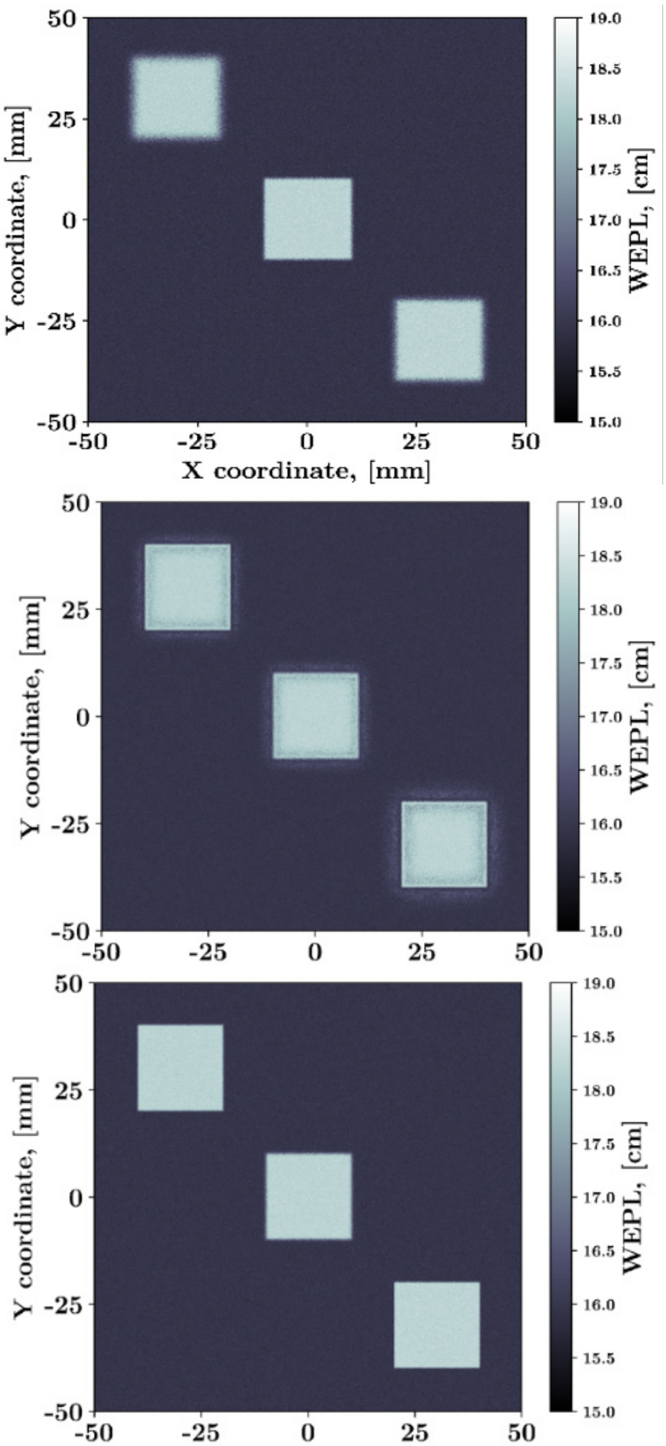


Figure 1. Example of i-Rad images with 250 MeV protons with different reconstruction algorithms – (from left) conventional plane-of-interest binning, edge detection based FS and local WEPL variation based FS

- **edge detection based**: as in [3,4], maximum spatial resolution of imaged object is achieved when reconstruction plane is coincident with object depth. Images were first de-noised with either Gaussian or median filter of varying size, continued by convolution with edge detection kernel (Laplacian, Sobel, Scharr or Prewitt).
- **local WEPL** variation based: novel approach, utilizing the fact that minimum WEPL standard deviation after pixel binning is achieved at imaged object boundary when reconstruction plane is coincident with object depth. De-noising with either Gaussian or median filter was applied prior to further analysis.

Based on respective FS metric for each approach, per-pixel estimated object depth was calculated from the stack and assigning WEPL value from respective reconstruction plane to final image. WEPL value accuracy was evaluated with respect to theoretical reference images. While, 3D localization precision was evaluated by comparison with actual positions of high contrast inserts.

Figure 1 presents an example comparison of i-Rad images acquired with conventional plane-of-interest binning and both FS approaches. It is clearly indicated that FS can achieve high image quality irrespective of imaged object position compared to conventional binning. Additionally, the novel proposed local WEPL variation based FS approach overcomes limitations of edge detection based FS [3] – decreasing noise, improving overall contrast-to-noise ratio and WEPL value accuracy.

Figure 2 presents example 2D distribution of estimated imaged object depth acquired with both FS approaches. Additionally, Figure 3 presents dependency of respective focus stacking metric on image reconstruction plane depth to be used for depth estimation. Quantitatively, for particle types and kinetic energies studied, deviation of estimated object depth with respect to reference varied between [-1.5; +3.7 mm], [-5.1;-3.9 mm] and

[-0.3; +1.2 mm] for cube centre positions of 2, 8 and 14 cm, respectively, if edge detection based FS was used. Slightly improved performance was achieved with local WEPL variation based FS, respectively – between [-1.5;+0.8 mm], [-3.5;-2.7 mm] and [+0.6; +2.2 mm]. Furthermore, local WEPL variation based FS achieved approximately 2-fold reduction of estimated position uncertainty.

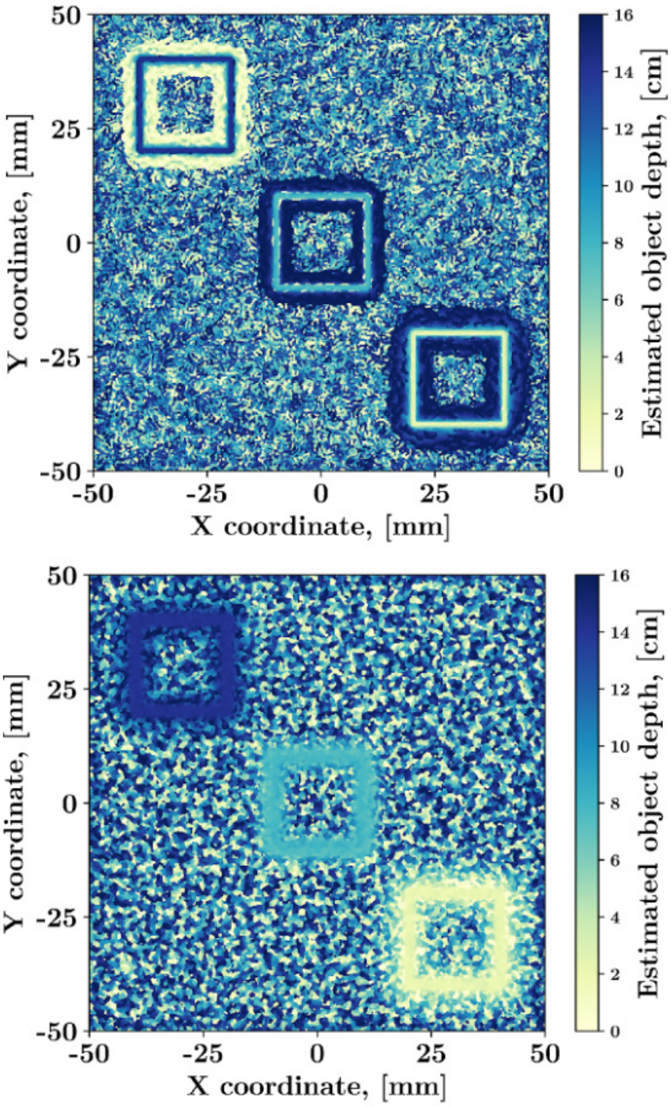


Figure 2. Example of estimated imaged object depth distributions with 250 MeV protons with different FS algorithms – (from top) edge detection based and local WEPL variation based

Summarising the results of the simulation study:

- use of Gaussian kernel for de-noising has favourable performance over median kernel both in achievable image quality and object depth estimation.
- in case of edge detection based FS, Sobel operator for edge detection proved to have best performance compared to Laplacian operator.
- de-noising kernel size for edge detection based FS should be optimized, with current study indicating best performance with σ of 2 pixels, while for local WEPL variation based FS larger kernel size is favourable - σ of 5 pixels in current study.
- evaluating the impact of proton energy used for i-Rad with FS, favourable performance was observe for lower energy levels (250-330

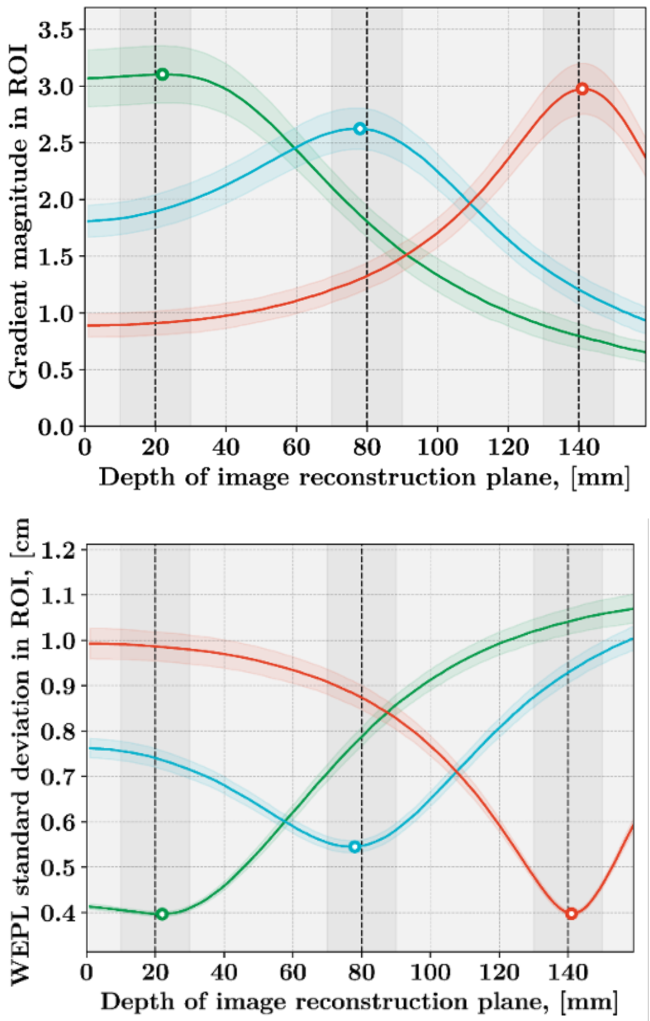


Figure 3. Example of FS metric dependency on image reconstruction plane depth for 250 MeV initial proton energy, reconstructed with different focus stacking methods – (top, bottom) edge detection based and local WEPL variation based

MeV) as estimated object position uncertainty increased with increasing energy for both FS approaches. Physically, this is attributable to changes of Multiple Coulomb scattering amplitude.
- in context of estimated object position accuracy, helium-4 ion performance was comparable to higher energy protons (500 – 600 MeV). While helium-4 ion use for i-Rad overall outperforms proton based i-Rad in terms of image quality, limitations could arise for FS approach implementation.

In conclusion, by using reconstruction plane depth dependent physical parameters (spatial resolution or local WEPL variation), FS can be implemented in i-Rad image reconstruction to improve image quality and enable depth estimation of imaged objects. Novel proposed method of local WEPL variation based FS enables reconstruction plane independent spatial resolution, improved contrast-to-noise ratio and mean WEPL accuracy within 1 – 1.5 mm, outperforming edge detection based FS. Furthermore, under high contrast conditions the method enables imaged object depth estimation with deviations of ±5 mm and significantly decreased estimated depth uncertainty compared to edge detection based FS.

Future work should focus on studying the approach in more complex, patient-like anatomies, giving the focus to feasibility of clinically significant range shift detection (low contrast scenarios), as well as further optimization of kernel sizes used for de-noising.

References

[1] G. Poludniowski, N. M. Allinson, and P. M. Evans, Proton radiography and tomography with application to proton therapy, The British Journal of Radiology, vol. 88, no. 1053, 20150134, Sep. 2015, doi: 10.1259/bjr.20150134

[2] C.-A. Collins-Fekete, N. Dikaios, E. Bär, and P. M. Evans, Statistical limitations in ion imaging, Physics in Medicine & Biology, vol. 66, no. 10, 105009, May 2021, doi: 10.1088/1361-6560/abee57

[3] L. Volz, C. Graeff, M. Durante, and C.-A. Collins-Fekete, Focus stacking single-event particle radiography for high spatial resolution images and 3D feature localization, Phys. Med. Biol., vol. 69, no. 2, p. 024001, Jan. 2024, doi: 10.1088/1361-6560/ad131a

[4] M. Metzner et al., 2.5D imaging: obtaining depth information from 2D helium-beam radiographs, Phys. Med. Biol., vol. 70, no. 20, p. 205017, Oct. 2025, doi: 10.1088/1361-6560/ae02de.

[5] L. Volz et al., The impact of secondary fragments on the image quality of helium ion imaging, Physics in Medicine & Biology, vol. 63, no. 19, 195016, Oct. 2018, doi: 10.1088/1361-6560/aadf25

[6] R. W. Schulte, S. N. Penfold, J. T. Tafas, and K. E. Schubert, A maximum likelihood proton path formalism for application in proton computed tomography, Medical Physics, vol. 35, no. 11, pp. 4849-4856, Oct. 2008, doi: 10.1118/1.2986139

Kristaps Paļskis is researcher at Riga Technical University Institute of Particle Physics and Accelerator Technologies. At Riga Technical University he earned his Master's in Medical Physics in 2020 and PhD in programme "Particle Physics and Accelerator Technologies". During his PhD, he was in the CERN Doctoral Student programme, working in NIMMS group, and a visiting student at DKFZ, working in prof. Joao Seco's group. His PhD work has focused on developments for particle therapy – helium ion therapy, application of FLASH effect and development of novel range verification methods.

In Memoriam: André Bridier

1988 – André Bridier during the feasibility study for the conversion of the Orsay synchrocyclotron into a medical accelerator (future Orsay Proton Therapy Centre)

It is with great sadness that the French Society of Medical Physics (SFPM) informs you of the passing of André Bridier on April 2, 2026, at the age of 78, just a few weeks before his 79th birthday.

In 1972, he was part of one of the very first cohorts of the university program in medical physics that had just been established in France at the University of Toulouse. After completing a doctoral thesis in science devoted to the dosimetric and microdosimetric study of high-LET particle beams in 1974, he joined Gustave Roussy Institute in 1976, within the medical physics team led by Andrée Dutreix, where he spent his entire career.

He specialized in absorbed dose measurement, a field in which his rigor and expertise were internationally recognized, leading to his receiving the “Lifetime Achievement Award” from ESTRO in 2009. He also became a leading figure in the teaching of dosimetry and contributed to the training of many generations of medical physicists.

Those who had the opportunity to work with him, whether as colleagues or students, remember his great modesty and kindness, always willing to help others and sharing his passion for teaching with remarkable simplicity.

Jean-Claude Rosenwald, retired medical physicist, previously head of the medical physics department at the Institut Curie in Paris (France)

Bernard Aubert, retired medical physicist, previously senior medical physicist at the Institut Gustave Roussy in Villejuif (France) then head of department at the IRSN (now ASNR)

Laure Parent, senior medical physicist at the IUCT-Oncopole in Toulouse (France) and president of the French association of medical physics (SFPM)

A New Voice for Medical Physics in Latvia

Figure 1. Association founding meeting, November 13, 2025. From the left: Arta Akuratere-Freiberga, Karlis Baltacis, Martins Piksis, Anda Tomina, Vineta Vanaga, Dace Purina, Katrina Caikovska, Agnese Katlapa

On November 13, 2025, a new chapter in the history of medical physics in Latvia was written. A group of dedicated clinical professionals gathered to establish the Latvian Association of Clinical Medical Physicists and Engineers (LAMPE). The founding was not a coincidence, but the result of clinical professionals recognizing that the challenges of daily practice required a unified, clinician-led voice. LAMPE was created to ensure that those who face these challenges firsthand are the ones shaping the solutions from professional standards and training pathways to regulatory frameworks and patient safety policies. The founders identified three core motivations behind the creation of the association. First, to ensure that clinical practice challenges are addressed by those who live them daily. Second, to establish proper clinical training pathways for the next generation of specialists. Third, to build professional standards grounded in hands-on clinical expertise and experience.

As stated in the association's founding philosophy, clinical professionals are best positioned to understand the problems and develop the solutions. Effective training demands a genuine clinical environment and mentorship, not only theoretical knowledge. And professional standards must be shaped by experience, not imposed from outside it.

LAMPE is organized into two core departments — the “Department of Clinical Medical Physics” and the “Department of Clinical Medical Engineering”, reflecting the association's unique position as a bridge between two closely related but distinct disciplines.

The Board, which assumed its duties on December 1, 2025, consists of six members representing both branches:

- **Martins Piksis** - President
- **Arta Akuratere-Freiberga** - Vice President
- **Anda Tomina** - Board Member, Treasurer
- **Katrina Caikovska** - Board Member, National

Delegate

- **Vineta Vanaga** - Board Member, Secretary
- **Karlis Baltacis** - Board Member

The association is registered in Liepaja and operates in full compliance with Latvian legislation. LAMPE welcomes three categories of members - Full members, Associate members and Honorary members.

As of April 2026, LAMPE already counts 19 members — 15 full members and 4 associate members, representing professionals from various medical institutions across Latvia. The association is actively working to expand its community.

LAMPE's strategic vision for the coming three to five years is both ambitious and grounded. Among the ten priority areas outlined in its development strategy are: the creation of a national registration system aligned with EFOMP and IOMP standards; a continuing professional development programme; active participation in the development of national regulatory frameworks; and the promotion of scientific research in collaboration with universities and international partners.

International integration stands at the heart of this strategy. Becoming an EFOMP NMO is explicitly named as a key goal, and in February 2026, LAMPE formally submitted its application for associate/extraordinary membership to the European Federation of Organisations for Medical Physics.

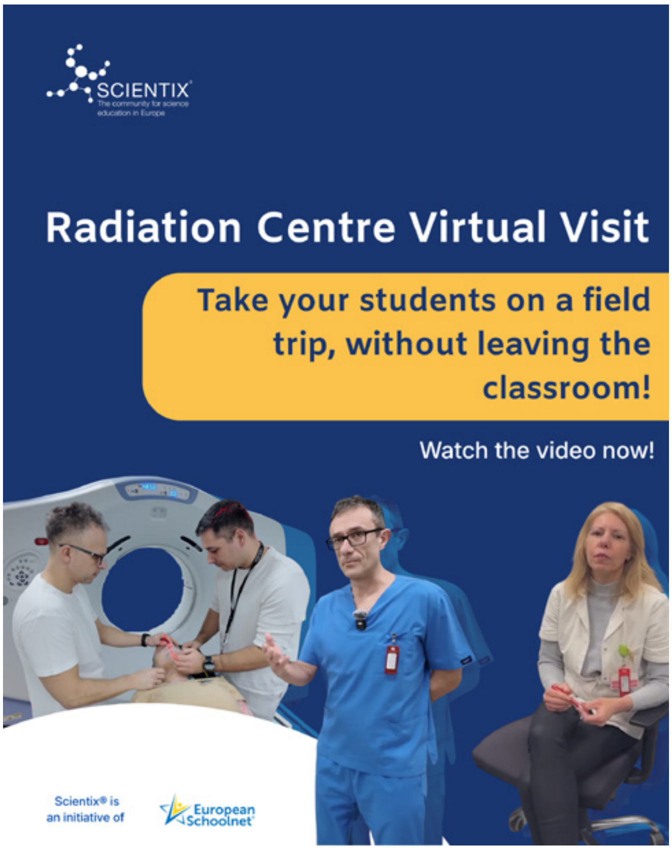
The association is equally committed to strengthening the emerging Baltic community of medical physics and biomedical engineering societies, seeking to develop joint research projects, shared training events, and knowledge exchange with colleagues in Lithuania and Estonia.

Less than six months after its founding, LAMPE has moved swiftly from vision to action. By April 2026, the association had already organized several local professional events that had been received with considerable enthusiasm, attracting approximately 50 participants each, a strong signal of the genuine demand for a dedicated professional community in Latvia.

LAMPE is only at the beginning of its journey, but the direction is clear. With a growing membership, a well-attended programme of events, and an active presence in international professional circles, the association is building the foundations of a strong, sustainable community. The goals ahead are ambitious, but so is the determination to achieve them. LAMPE believes that progress in medical physics and engineering is best made together.

Martins Piksis is a clinical medical physicist with 23 years of experience. Currently, he serves as the Head of the Radiation Safety Department of Liepāja Regional Hospital and is the President of the Latvian Association of Clinical Medical Physicists and Engineers. He is actively involved in various research projects, and in recent years has mainly focused on the implementation of AI in radiation medicine.

Promoting the Medical Physicists Profession



As we navigate an era of rapid technological advancement in radiotherapy, diagnostic radiology, and nuclear medicine, the role of the Medical Physicist has never been more critical. However, ensuring continual education in this field and securing professional recognition remains a challenge across Europe. To address this, the Serbian Association of Medical Physicists (SAMP) has recently focused on bridging the gap between high-level physics and its clinical application through strategic outreach and international collaboration.

Promoting the Profession via Scientix and STEM Job Profiles

One of our recent initiatives involves the promotion of the profession by collaborating with Scientix®, the community for science education in Europe (https://www.scientix.eu/), on the creation of a **Medical Physics STEM Job Profile**, hosted on the Scientix portal, alongside a **Virtual Workplace Visit** to one of our medical centres.

With this initiative, we wanted to provide a clear and accessible roadmap for students and educators, demystifying what it means to work in clinical physics. By detailing responsibilities of the job, we hope to inspire the next generation and show why studying physics is crucial for the general progress of humanity.

Educators in secondary schools and undergraduate studies can use this combination of academic details, professional insights, and the 20-minute-long video visit into their teaching to explore this essential career with students. You can access the profiles and video here.

This resource serves as a vital tool for science education and outreach, allowing us to engage with high school students and undergraduates who may not yet be aware of Medical Physics as a viable and rewarding career path. In Serbia, we are integrating these profiles into physics festivals and educational workshops to foster early interest in the field.

A New Chapter for the Serbian Association of Medical Physicists

I am deeply honored to address the EFOMP community for the first time as the newly elected President of the Serbian Association of Medical Physicists. My journey in this field, from a high school physics teacher to a clinical medical physicist—has instilled in me a firm belief in the power of education and professional advocacy.

My vision for SAMP over the coming years is built on three pillars:

1. **Professional Recognition**: Strengthening the legal and clinical status of Medical Physicists in Serbia to ensure we are recognized as essential health professionals.
2. **Education and Training**: Expanding our collaboration with EFOMP to bring more residency and specialization opportunities to Serbian physicists, ensuring our workforce meets the highest European standards.
3. **Regional Leadership**: Serving as a bridge for Medical Physics development in the Balkan region, sharing resources like the STEM job profiles to harmonize our educational efforts.

Looking Ahead

The radiotherapy department at ZC Kladovo and other centers across Serbia are seeing significant modernization. As we upgrade our technology, we must equally "upgrade" our professional visibility. We look forward to collaborating with our European colleagues to further these goals. Together, we can ensure that the physics of today remains the medicine of tomorrow.

Ivan Stojanović is a medical physicist and President of the Serbian Association of Medical Physicists. He holds an MSc in Applied Physics and Informatics from the University of Belgrade and is a PhD student at the University of Kragujevac. A former physics educator, he serves as a Scientix ambassador.

Jelena Krestić Vesović is medical a physicist at UCC in Kragujevac. She earned an MSc in Applied Physics at the University in Kragujevac, and after that, became a Magister Science of Medical Nuclear Physics at the University in Novi Sad. Now, she is a PhD student at the University in Kragujevac. Also, she is an educator.

Marina Belić is a medical physicist at ZC Kladovo. She holds a Master's degree in Physical Chemistry from the University of Belgrade. With a decade of experience in physics education, her current work focuses on the clinical implementation of advanced VMAT and IMRT techniques.

Article Contributor:

Eddy Grand-Meyer is the Dissemination and Outreach Lead for the Science Education Department of European Schoolnet®, the Network of 30+ European Ministries of Education that coordinates Scientix®. He holds MSc in Climate Change Policy and Science Communication from Te Herenga Waka Victoria University in New Zealand.

Working as an MPE in Cyprus

Interview series on the path to MPE and work in different countries

GENERAL INFO

Number of MPEs in the country: 22
Name of National Member Organisation (NMO): Cyprus Association of Medical Physics and Biomedical Engineering (CAMPBE)
Link to website: https://campbe.org/
Number of Members in NMO: 60
"**Medical Physicist" in the national language(s)**: Greek: Φυσικός Ιατρικής or Ιατροφυσικός

BECOMING MPE

What are the entry requirements to become a trainee for MPE status?

The minimum academic entry requirements are:

- A university degree (BSc, minimum 4 years / 240 ECTS, EQF Level 6) in Physics or a closely related physical-science discipline from a recognised higher-education institution.

- A postgraduate qualification (MSc, 90–120 ECTS, EQF Level 7) in Medical Physics or an equivalent specialisation (e.g. Medical Radiation Physics, Radiation Physics). As no MSc in Medical Physics is currently offered in Cyprus, candidates obtain their postgraduate degree abroad — most commonly in the United Kingdom, Greece, or other EU member states.

Subsequent clinical training under the supervision of a recognised MPE is then required to progress toward MPE status, as described below. The framework follows EU Council Directive 2013/59/Euratom, transposed into Cypriot law by the Protection against Ionising Radiation and Nuclear and Radiological Safety and Protection Law of 2018 (Law 83(I)/2018), and is aligned with EC Radiation Protection Report No. 174 ("European Guidelines on Medical Physics Expert") and EFOMP Policy Statements.

How would a student proceed to find training positions in your country?

In Cyprus there is no centralised matching scheme or dedicated online portal for medical physics traineeships. Candidates normally approach employers directly:

- Public sector — State Health Services Organisation (OKYπY / SHSO): positions are announced through the official Public Service Commission (https://www.psc.gov.cy) and through SHSO (https://shso.org.cy). It is the largest employer of medical physicists in Cyprus
- Public sector — Bank of Cyprus Oncology Centre (BoCOC, https://www.bococ.org.cy): a radiotherapy centre in Cyprus; it trains and employs medical physicists in radiotherapy and nuclear medicine.
- Private sector — German Medical Institute (GMI) a medical institution for radiotherapy, nuclear medicine and diagnostic and interventional radiology.

- Through the national member organisation — CAMPBE — which disseminates vacancy announcements to its members and offers networking opportunities at its scientific events.

Prospective trainees are also encouraged to consult the Radiation Inspection and Control Service (https://www.mlsi.gov.cy/dli) for information on the legal framework, and to engage directly with recognised MPEs who may act as clinical supervisors.

Can you describe the training period?

Following completion of the BSc and MSc qualifications, the candidate undertakes a period of structured clinical training under the professional supervision of a recognised MPE in one or more of the three statutory specialty fields: (i) diagnostic and interventional radiology, (ii) nuclear medicine, and (iii) radiotherapy. The training is based on the European core curricula developed by EFOMP (together with ESTRO, EANM and EFOMP's own E&T Committee) and addresses:

- Patient dosimetry and the development and use of complex techniques and equipment.
- Quality assurance and quality control of radiological and radiotherapy equipment (including acceptance testing, commissioning and periodic performance testing).
- Optimisation of medical exposures and justification support.
- Radiation protection of patients, staff, carers and members of the public, including shielding design and area classification.
- Incident and accident analysis, risk assessment and investigation of unintended or accidental exposures.
- Treatment planning (in radiotherapy), image quality assessment and dose optimisation (in imaging), internal dosimetry and radiopharmaceutical QC (in nuclear medicine).
- Research, teaching and contribution to clinical audit.

The training is documented through a portfolio (reports, protocols, case logs, participation in commissioning or incident investigations) that is retained for submission to the competent authority.

Duration of practical experience required before obtaining MPE status:

A minimum of two years of full-time supervised clinical experience in the relevant specialty field after the MSc is the accepted baseline, in line with the European Guidelines (RP 174) and with competence at EQF Level 8. In practice, applicants in Cyprus typically present three to five years of documented clinical experience before applying for MPE recognition, reflecting the multi-specialty scope of the role in a small country and the absence of separate per-specialty national certification examinations.

Is there an additional exam to become an MPE?

There is currently no additional national written or oral examination specifically for MPE status in Cyprus. Recognition is granted by the Radiation Inspection and Control Service (RICS/DLI) following assessment of:

- Academic credentials (BSc + MSc in Medical Physics or equivalent).
- Documented supervised clinical experience in the requested specialty field(s).
- A portfolio of practical work (QC reports, dosimetric measurements, shielding calculations, risk assessments, etc.) produced by the candidate.
- Continuing professional development activities completed prior to application.

The competent authority may, where appropriate, seek the advice of CAMPBE or of existing recognised experts. Recognition is issued for specific categories of practice (diagnostic and interventional radiology; nuclear medicine; radiotherapy) and is valid for five years, subject to renewal upon evidence of continued CPD and active practice.

WORK AS MPE

In which fields do MPE work and in approximately which proportions?
The distribution of specialty recognitions among the 22 MPEs is approximately as follows:

- Diagnostic and interventional radiology — approximately 85% of MPEs (19 of 22).
- Nuclear medicine — approximately 75% of MPEs (17 of 22); in Cyprus this field is almost always practised in combination with diagnostic radiology.
- Radiotherapy — approximately 30% of MPEs (7 of 22), concentrated at the Bank of Cyprus Oncology Centre, the German Oncology Center, and the forthcoming state radiotherapy service at Nicosia General Hospital.

In addition, the large majority of MPEs are separately recognised by the same authority as Radiation Protection Experts (RPEs), so that in day-to-day practice MPEs frequently combine both roles — acting as the hospital's RPE and providing advice on occupational and public exposure as well as on patient exposure. Several MPEs also hold recognition for non-medical applications (industrial radiography, security scanning, veterinary practices, transport of radioactive sources).

MPE employment in Cyprus follows three main patterns:

- Salaried employment in the public sector — the State Health Services Organisation (the public-hospital network covering the five general hospitals in Nicosia, Limassol, Larnaca, Paphos and Famagusta) and the Bank of Cyprus Oncology Centre.
- Salaried employment in the larger private centres — notably the German Medical Institute (Limassol), and larger private hospitals with in-house medical-physics cover.
- Self-employed / independent practice — a substantial share of the catalogue works as individual medical-physics experts whose clients are private hospitals, private diagnostic imaging centres, nuclear-medicine clinics, dental and veterinary practices, and industrial and security operators.

A small number of MPEs work primarily in academia or within the regulatory body itself.

What is required in terms of continuous professional development while working as MPE?
CPD is a formal requirement for renewal of MPE recognition. At the end of the five-year recognition period, the practitioner must submit evidence of continued active practice and of sustained professional development. Accepted CPD activities include:

- Attendance at and contribution to international and national scientific congresses (e.g., ECR, ESTRO, EANM, ECMP, IRPA, CAMPBE Annual Scientific Meeting).
- EBAMP-accredited courses and other recognised training events, including IAEA regional training courses.
- Publication of peer-reviewed papers and presentation of scientific work.
- Teaching, mentoring of trainees and supervision of MSc or PhD theses.
- Participation in national and international committees, working groups and regulatory consultations.

CAMPBE organises regular scientific meetings, short courses and an annual scientific meeting; these are aligned, where possible, with EFOMP and EBAMP CPD schemes. There is no single nationally mandated credit threshold in legal text; the competent authority assesses the totality of the CPD portfolio at renewal.

Which role does research play for MPE in Cyprus?
Research is not a statutory condition for MPE recognition, but it plays a growing and important role. Cypriot MPEs contribute to and lead:

- EU-funded research and capacity-building projects, including Horizon Europe / EU-

4Health calls (e.g., imaging protocol harmonisation, population cancer-screening projects, radiotherapy service development) and Erasmus+ consortia (e.g., digital health and medical-physics education).

- IAEA technical cooperation projects (Cyprus has a long-standing TC programme, and Cypriot MPEs regularly contribute as counterparts and lecturers at IAEA regional courses).
- National initiatives such as the population-based Breast Cancer Screening Programme (covering five centres and more than 30,000 women annually) and the recently launched National Lung Cancer Screening Programme (LDCT).
- Collaboration with the universities listed above — in dosimetry, radiobiology, image reconstruction and AI in medical imaging, and radiation-protection research.
- Clinical-audit work and QI initiatives within SHSO and the Clinical Audit Committee.

INTERNATIONAL MOBILITY

Which steps would be necessary for MPE from another European country to obtain MPE status in your country?

The procedure for an EU medical physicist seeking recognition as MPE in Cyprus is the following:

1. Registered as a medical physicist in Cyprus – Submit an application to the Medical Physics Registration Council for professional-qualification recognition to be registered as a medical physicist in Cyprus; acts as a first point of contact. Relevant application forms and guidance are available at https://www.moh.gov.cy/moh/mprc.nsf/index_gr/index_gr?OpenDocument
2. Recognized as a Medical Physics Expert (MPE) in Cyprus - Submit an application to the Radiation Inspection and Control Service (RICS) of the Department of Labour Inspection, which is the competent authority under the Protection against Ionising Radiation and Nuclear and Radiological Safety and Protection Law of 2018 to be recognized as an MPE in Cyprus. Relevant application forms and guidance are available at: https://www.mlsi.gov.cy/mlsi/dli/dliup.nsf/All/0B9D221BCCCE3F47C2257E2D002840CB?OpenDocument. Recognition is granted per specialty field (diagnostic and interventional radiology; nuclear medicine; radiotherapy) and is valid for five years.

Which language skills are required for MPE work?

Greek is the main working language in Cyprus; however, fluent Greek is a formal requirement only for permanent posts in the public service. English is widely used as an everyday working language in many private-sector areas, and MPEs seeking professional recognition do not need to demonstrate Greek proficiency.

OTHERS

Is there anything worth mentioning about being an MPE in Cyprus?

- Cyprus is a small EU member state (population ~920,000) and this shapes the profession in several ways. For example, a small number of MPEs means individual MPEs often cover more than one specialty and multiple sites. A typical MPE may combine diagnostic radiology, nuclear medicine and radiation-protection duties.
- The Medical Physics service of SHSO operates across all eight public hospitals and is additionally responsible for the national PACS / VNA / DICOM infrastructure — an unusual combination of clinical medical-physics and imaging-informatics responsibilities that is not common in larger countries.
- Because there is no MSc in Medical Physics in Cyprus at present, most Cypriot MPEs have studied abroad, most commonly in the UK and Greece.

Dr Irene Polycarpou is an Associate Professor in Medical Physics and the Chair of the Department of Health Sciences at European University Cyprus. Research interests include enhancement of the diagnostic value of Positron Emission Tomography (PET) and single photon emission computed tomography (SPECT). Within CAMPBE she serves as the Past President of the Executive Council and as the Association's representative to the EFOMP.

Demetris Kaolis, MSc, is a Medical Physics Expert and Radiation Protection Expert of the Republic of Cyprus. He serves as Coordinator of the Medical Physics – PACS Service of the State Health Services Organisation (ΟΚΥπΥ / SHSO), where he has been responsible for the development and operation of the national PACS/VNA/DICOM infrastructure across the public-hospital network since 2012. He is currently also responsible for SHSO's Medical Equipment Procurement Unit and is a member of the Organisation's Scientific Council. Within CAMPBE he serves as a Member of the Executive Council and as the Association's representative to the International Organization for Medical Physics (IOMP); he is a past President of CAMPBE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Radiation Detectors and Methods in Medicine

Therapy, Diagnostic and Radiation Protection

Medical Physics Publishing, 1st edition 2025, 578 pages, contents: 31 chapter. Hardcover: ISBN 9781951134358, $165
eBook: ISBN 9781951134365, $165

Overview of the contents

This book edited by Indra Das assembles knowledge on radiation detectors and their applications in 31 chapters written by over 75 authors. Given the width of topics within the common frame of radiation detectors, the book is a great resource to dive into a specific topic or to learn something new about an unfamiliar detector type or measurement task. A first overview of each topic is provided on roughly 20 pages per chapter and a lot of literature for further reading is indicated.

The book can be divided into five sections. The first five chapters include an introduction, characteristics of radiation measuring devices, theoretical background including the role of Monte Carlo simulation, calibration and traceability. A chapter is dedicated to each of the following detector technologies: calorimetry, films/gels/radiochromic polymers, solid-state detectors, scintillators, luminescence detectors/alanine, Fricke chemical dosimeters, and kilovoltage dosimeters.

The state of the art, challenges and practical advice for different measurement tasks for radiotherapy applications are then discussed in part two, covering relative dosimetry, small and large fields, and quality assurance. Detectors for MR-Linacs, particle beams and neutrons are each given their own chapters.

The third part looks at brachytherapy measurements with three chapters on measurement standards, gas-filled detectors and electronic brachytherapy. The fourth part contains four chapters on measuring imaging dose in the context of radiographic imaging, cone beam computed tomography, computed tomography, and nuclear medicine. The fifth part contains other detector types, such as detectors for FLASH, biological dosimeters, biodosimetry in radiation emergencies and radiation protection dosimetry.

Comments

I contributed to two chapters on relative dosimetry and solid-state detectors. Writing a book had been on my bucket list for a long time. While I had rather envisioned something more fictional, I did not hesitate to commit.

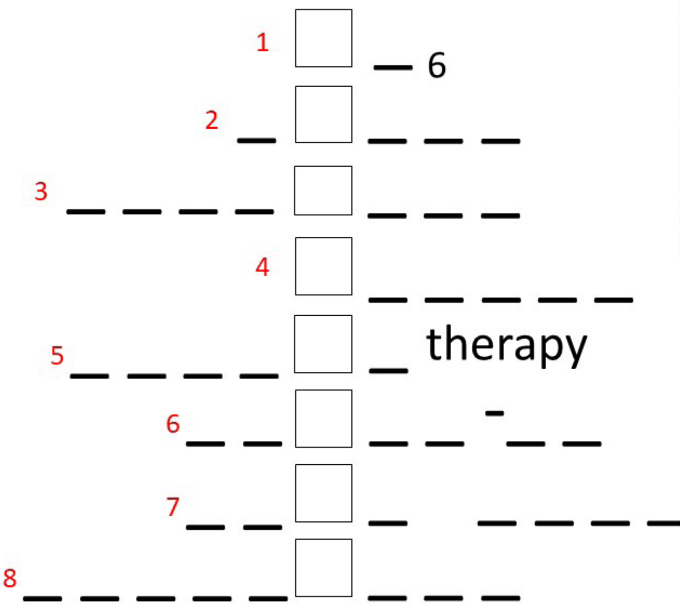
It took us roughly a year to write up our chapters, check the proofs and finally receive the paper copy. This does not even include the time the editor needed to develop the idea, sketch an outline and look for authors. One of my chapters was jointly written by researchers based in Japan, the United States of America and myself in Germany. Scheduling our regular video calls was quite challenging, because it was always late at night for one of us and early morning for another.

However, I would not want to miss the experience. When you write something down, you think about think about it in detail and try to structure your thoughts. I made new contacts meeting some of the other chapter authors at a common dinner at a conference. As an author, one gets a free copy to brag with in front of your colleagues and family. But most of all, I think the book is a great resource and I am looking forward to reading all the other contributions as well.

Sonja Wegener is a Medical Physicist at the Department of Radiotherapy at the University Hospital Würzburg, Germany. She has been a member of the EFOMP Communications & Publications Committee since 2024. She contributed to two chapters in the above-mentioned book.

Quizzes

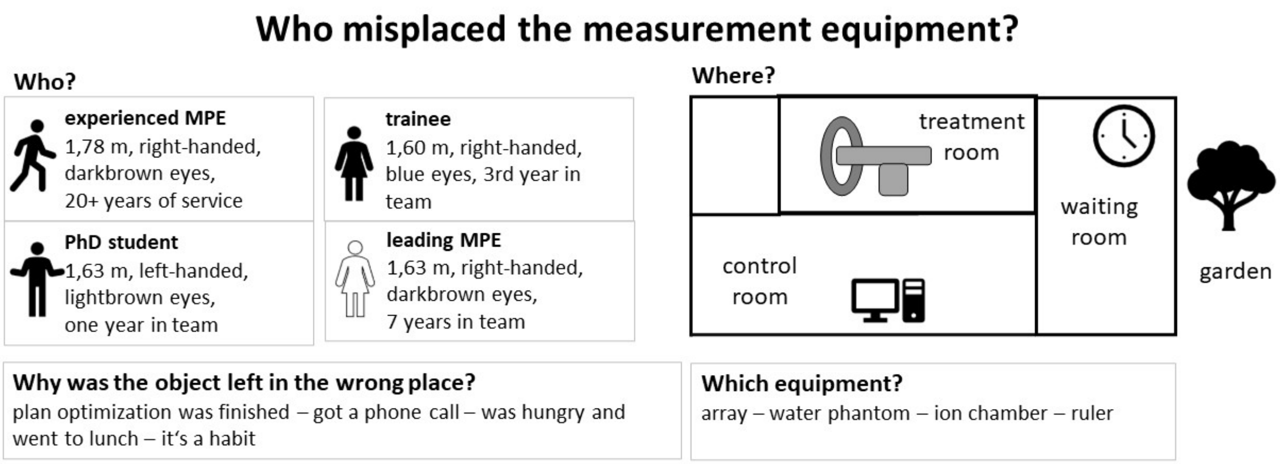
Something fun to solve over the summer holidays… or while you wait for QA to finish



Crossword

1 insulating gas used in Linacs
2 non SI unit for radioactivity
3 ECMP 2026 takes place in …
4 patient position with face up
5 therapy from a short distance
6 Region between skin and dose maximum
7 CT image acquired without incrementing the couch
8 SI unit for radioactivity

The Misplaced Equipment Mystery



OBSERVATIONS

1. The person carrying the array was right-handed.
2. A calibration certificate was found in the treatment room.
3. Whoever got a phone call was not in the garden.
4. The experienced MPE was outdoors all day.
5. Whoever was hungry and needed to go to lunch immediately moved a heavy object around.
6. The person passing through the waiting room had most recently joined the team.
7. The person whose plan optimization was finished had blue eyes.
8. A suspect the same size as the PhD student was seen with the ruler.
9. After an extensive search, the measurement equipment was finally found in the control room.

Who left which equipment in the control room and why?

Codebreaker

Number of Cobalt-60 sources in a Gamma Knife

[ ] [ ] [1]

X-Rays were discovered on November 8 in the year

[ ] [2] [ ] [ ]

Most physicists do their dosimetry according to TRS

[3] [ ] [ ]

Yearly cost of becoming an EFOMP individual associate member in €

[ ] [4]

$$965 \times \boxed{1} + (\boxed{2} + \boxed{3}) * 5 - \boxed{4}$$

$$= \square\square\square\square$$

Hint: EFOMP was founded that year!

Solutions

Crossword

1. SF6
2. Curie
3. Valencia
4. Supine
5. Brachytherapy
6. Build-up
7. Cone beam
8. Becquerel

Codebreaker

Number of Cobalt-60 sources in a Gamma Knife *192*

X-rays were discovered on November 8, *1895*

Most physicists do their dosimetry according to TRS *398*

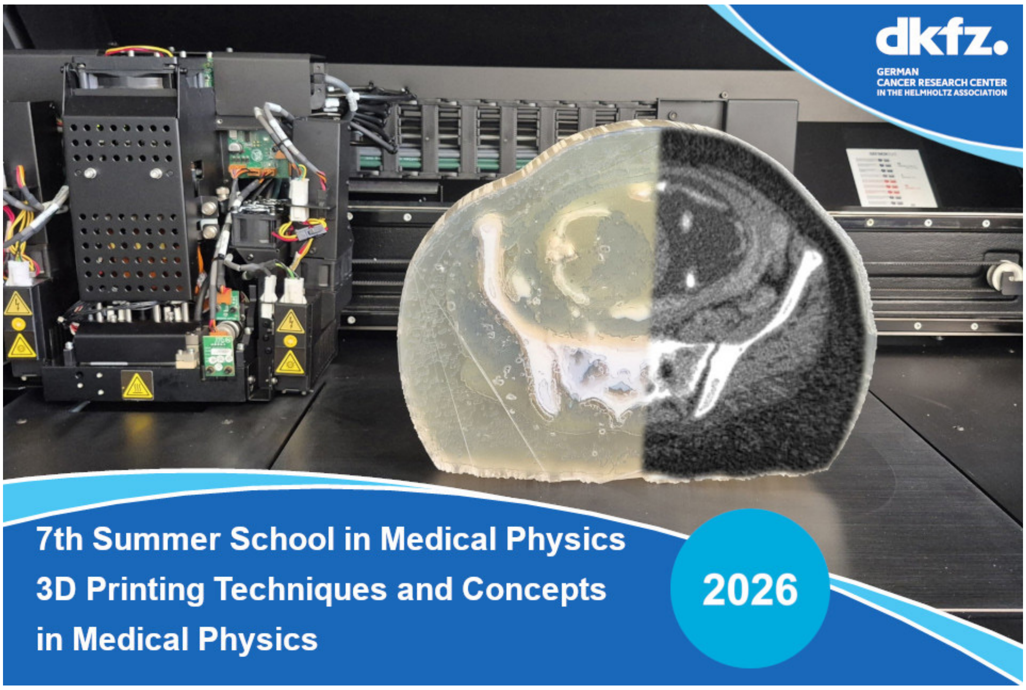
Yearly cost of becoming an EFOMP individual associate member *15 €*

The Misplaced Equipment Mystery

Experienced MPE	PhD student	trainee	Leading MPE
Array	Water phantom	Ion chamber	ruler
Garden	Waiting room	Treatment room	Control room
It's a habit	Went to lunch	Plan finished	Got a phone call

Sonja Wegener is a Medical Physicist at the University Hospital Würzburg, Germany, and member of the EFOMP's Communications & Publications Committee.

7th Summer School in Medical Physics 2026: 3D Printing Techniques and Concepts in Medical Physics



We are happy to announce our 7th Summer School in Medical Physics about 3D Printing **Techniques and Concepts in Medical Physics**, to be held in August and September 2026. The course is organized under the auspices of the Heidelberg Institute of Radiation Oncology (HIRO) in close cooperation with our partners (see below). The summer school is subdivided into an **online phase** of about five weeks and an attendance phase of one week. The **attendance phase** is organised as a hybrid model, such that all sessions of the attendance phase are additionally available online via Zoom. Thus, participants can decide to follow the course **online and on site** or **100% virtually**. The teaching language is English.

This summer school provides a comprehensive introduction to the role of 3D printing in medical physics, with a particular focus on applications in radiotherapy. Participants will gain insight into how additive manufacturing technologies are currently used in clinical and research settings, as well as the opportunities and challenges associated with their implementation. The program begins with a refresher on key radiotherapy principles to ensure a common foundation for all attendees. Building on this, we will explore different radiotherapy concepts where 3D printing can offer innovative solutions, supported by examples of ongoing projects and applications. Participants will also be introduced to the software workflows required for medical 3D printing, from image segmentation to model preparation and printer operation. In addition, we will address important regulatory and quality assurance considerations that arise when producing 3D-printed devices intended for patient use.

A central highlight of the summer school is a hands-on workshop covering the complete development cycle of a 3D-printed phantom. The course concludes with an overview of current applications and future directions of 3D printing in medical physics, providing participants with practical ideas they can apply in their own institutions. Participants can also join an optional project management as well as presentation and rhetoric workshop to improve their skills.

The summer school is designed for **national** and **international PhD, MSc or BSc students or young scientists and clinical trainees** with a background in Physics, Medical Physics, Medical Engineering, Medical Technology or similar. BSc students should be at the end of their studies. Participation is limited and we look forward to receiving your application.

Dates:

1. Registration Deadline: **July 31, 2026**
2. Online Phase: **Aug. 24 – Sep. 27, 2026**
3. Hybrid Attendance Phase in Heidelberg or via Zoom: **Sep. 28 – Oct. 2, 2026**

Program:
The program can be downloaded from the website: www.dkfz.de/summer_school2026

Host:
Prof. Oliver Jäkel, PhD
Division of Medical Physics in Radiation Oncology (E040), German Cancer Research Center, Heidelberg, Germany

Course Leaders:
Armin Runz
Group Leader of the Research Group Medical Engineering in the Division of Medical Physics in Radiation Oncology (E040), German Cancer Research Center, Heidelberg, Germany

Wibke Johnen
Deputy Group Leader of the Research Group Medical Engineering in the Division of
Medical Physics in Radiation Oncology (E040), German Cancer Research Center, Heidelberg, Germany

Christina Stengl, PhD
Postdoctoral Researcher in the Research Group Translation Research for Ion Beam Therapy
in the Division of Medical Physics in Radiation Oncology (E040),
German Cancer Research Center, Heidelberg, Germany

Contact:
Local Organizing Team
Anna Moshanina, Simone Barthold-Beß, PhD, Marcel Schäfer
Division of Medical Physics in Radiation Oncology (E040)
German Cancer Research Center
Im Neuenheimer Feld 280
DE-69120 Heidelberg, Germany
E-Mail: symposium.medphys@dkfz-heidelberg.de
Web: www.dkfz.de/summer_school2026

Prof. Jäkel is head of the Division of Medical Physics in Radiation Oncology at the German Cancer Research Center. He holds a PhD in Physics, and since 2014 he has been a full professor at the Medical Faculty Heidelberg of Heidelberg University

Artificial Intelligence in Medical Imaging: Beyond Innovation, Towards Responsibility

In April 2026, the Associazione Italiana di Fisica Medica e Sanitaria hosted a focused workshop in Verona dedicated to one of the most pressing topics in modern healthcare: the integration of artificial intelligence (AI) into medical imaging.

Organized by Michele Avanzo, Osvaldo Rampado, and Cinzia Talamonti, the initiative aimed to provide an updated overview of AI applications and a structured framework to interpret their impact on clinical workflows. While AI is often presented as a disruptive force capable of revolutionizing imaging, this workshop deliberately positioned medical physics at the center of a more balanced narrative: one where innovation must be guided, validated, and critically assessed. Consistent with this perspective, the faculty was deliberately multidisciplinary, bringing together medical physicists, radiologists, regulatory experts and ethicists, reflecting the shared responsibility that AI integration demands across the imaging pathway.

The first part of the programme addressed the foundations of AI, moving from terminology to its integration within the radiological workflow. Speakers explored how AI is already supporting diagnostic processes and where its role is still emerging, highlighting both opportunities and limitations. Clinical perspectives were provided by the radiologists Salvatore Claudio Fanni (Pisa) on AI in the radiological workflow and Sergio Salerno (Palermo) on AI as a diagnostic aid, while Barbara Martelli (Bologna) addressed the computing infrastructures required for the different operational settings.

A particularly strong engagement from the audience emerged during the sessions dedicated to regulatory and ethical aspects—areas that are often perceived as secondary, yet are in reality crucial for safe and effective clinical implementation. The lecture on regulatory frameworks and AI-based medical devices by Federica Censi from the Istituto Superiore di Sanità highlighted the complexity of translating AI algorithms into certified clinical tools. Equally impactful was the presentation by Prof. Giovanni Di Rosa, from the University of Catania, on ethical aspects, which opened a broader reflection on responsibility, transparency, and patient trust. These contributions clearly underscored that regulatory and ethical dimensions—too often underestimated—are in fact pivotal elements of clinical practice and must be fully integrated into the professional competencies of medical physicists.

The workshop then moved toward more applied perspectives. Osvaldo Rampado (Turin) reviewed the state of the art of AI for CT and CBCT reconstruction. Adriana Taddeucci (Florence) traced model observers for image quality assessment, from classical approaches to deep learning. Mika Kortesniemi (Helsinki, online) addressed AI for patient dose evaluation in radiology and CT. Lidia Strigari (Bologna) covered AI in nuclear medicine imaging. Luisa Altabella (Verona) presented the potential of AI in MRI, in particular for deep learning reconstruction. Annalisa Trianni (Trento), Daniele Ravanelli (Trento), and Alessio Boschini (Treviso) addressed HTA, quality assurance, and implementation, reinforcing the importance of robust validation and human oversight.

A recurring theme throughout the discussions was the evolving role of the medical physicist. In an AI-driven environment, their contribution extends beyond traditional quality control: they become mediators between complex technologies and clinical reality. This shift is not merely technical—it is cultural.

Ultimately, the Verona workshop highlighted a key message: the future of AI in medical imaging will not be defined solely by technological progress, but by the ability of the medical physics community to critically engage with it. Continuous education, interdisciplinary collaboration, and awareness of regulatory and ethical responsibilities will be essential to ensure that innovation remains aligned with patient safety and clinical value.

Prof. Cinzia Talamonti is Associate Professor of Medical Physics at the University of Florence and Head of the Radiologic Technology School. Her research focuses on advanced radiotherapy and AI in medicine. She is a coordinator of AIFM AI Taskgroup and of the EFOMP Communications and Publications Committee. She has published extensively in high-impact scientific journals (ORCID) and has led numerous research projects throughout her career.

Dr. Michele Avanzo is a Medical Physicist at Centro di Riferimento Oncologico IRCCS di Aviano. He is a member of the Scientific Committee of EFOMP, coordinator of AI Taskgroup of AIFM, the Italian NMO of EFOMP, and author of numerous research and review papers on AI in imaging and radiotherapy (ORCID).

Osvaldo Rampado is the Director of the Department of Medical Physics at the Città della Salute e della Scienza University Hospital in Turin. His work focuses on radiation protection, patient dose optimization, and the applications of artificial intelligence in medical imaging. He teaches radiation protection and medical physics at the University of Turin. He is currently involved in multicenter research projects on dosimetry in diagnostic and interventional radiology and virtual imaging trials.

BHPA Symposium 2026 in Bruges: Let's Get Physical

Report from the BHPA Symposium at BMCC Bruges in Belgium

Setting the scene

Every year, around the midst of winter, something special takes place in the world of medical physics in Belgium. This year was no different as the community rallied together in the UNESCO world heritage city of Bruges, famous for its medieval beauty and rich history. This annual festival of knowledge exchange, (re-)connecting and the latest insight in medical physics is known formally as the BHPA Symposium and offers the very best of Belgium.

Figure 1. The Bruges Meeting & Convention Centre (BMCC) where the BHPA Symposium 2026 took place.

The venue for all this was the new BMCC, an architectural beauty conceived by Eduardo Souto de Moura and the META architectuurbureau in the heart of Bruges that opened its doors only 4 years ago. This high end, sustainable venue offers the perfect meeting grounds for our annual get together. Considering sustainability and authenticity the organizing committee chose to emphasise local products and services throughout the conference. Therefore, upon entering you were greeted by students of the famous Spermalie school, a household name in hotel- and hospitality education residing in Bruges. The students handed over the badges and managed every aspect of what constitutes a warm welcome. Defining the future together.

Shaping the future

The 400 attendees then went on to the exhibition hall where they encountered the necessary refreshments and 23 sponsor booths where a much-appreciated dialogue between vendor and customers took place, and which is essential to the further improvement of numerous applications, products and tools that shape the everyday life of a medical physicist. Aside from this dialogue, one could discover state-of-the-art and optimized products developed by a wide range of firms that translate new technologies into clinical gains.

Figure 2. Exhibition hall featuring refreshments and sponsor booths

The opening address of Bert 'The White Obama' Bakelandt focused down on this year's slogan 'Let's get Physical' calling for multidisciplinary interaction, both scientifically as well as socially.
Throughout the abstract focused program topics were grouped: sessions on treatment planning, imaging and motion management, QA & Dosimetry, RX, quality management and nuclear medicine covered a vast scope of frontier science as well as fundamentals of medical physics. Presented in terrific fashion by both young and more experienced members of our community. This set the arena for our famous Young Physicist Award: in each main field (RX, RT, NM) a recipient for outstanding abstract in combination with presentation skills would be chosen at the end of the conference.

Figure 3. BHPA Symposium 2026 auditorium.

Aside from abstract driven sessions, the BHPA offers the possibility for closely associated professional organisations such as ChiMPS (Heads of Medical Physics) and the BVS-ABR (The Belgian Society for Radiation Protection) to chime in on the conference and host their own sessions that provide food for thought.

Beyond borders

However, food for thought will not settle an empty stomach so local catering provided by Cardinal offered the best of Belgium during lunch: fries with a classical Flemish beef stew known as 'stoofvlees' to locals. Taste optimisation at minimal cardiovascular risk. Healthier alternatives were present for those sticking on the safe side.
Professional matters were discussed and settled during a two hour long general assembly session giving ample time for discussion and to give feedback on the organisation's functioning. Always on the lookout for improvement the board invited G. Le Rouzic to speak about the education of medical physicists in France, a presentation that sparked lively discussion among participants.

Figure 4. General assembly session.

Let's Get physical!

All work and no play is rarely a good idea, so the attendees were welcomed to the social event taking place on the top floor of the BMCC accurately named "the View". Following the reception the infamous BHPA Quiz 2026 took place. Handling controversial and not so serious topics in medical physics in a light and accessible fashion, the quiz provided eternal glory to one team and despair in others. To digest all the above a three-course meal was provided followed by a party where formalities are disregarded. The community danced and raved at close of day.

Most of us made it through the night unscathed and joined the morning sessions. A vast range of subjects were handled with the focus being MRI, adaptive planning and nuclear medicine. A nov-

Figure 5. Attendees at the social event.

elty this year was an MPA session only. In the ever faster changing world of contouring and planning - largely driven by AI and adaptive planning – the profile of the MPA in transition was discussed among peers.

The conference arrived at its apotheosis with the closing debate in which the pregnant patient was addressed from multiple perspectives. Among the topics touched upon were tools for fetal dose estimation and issues in diagnostic radiology, the clinical perspective and decision-making. All of this incited a wonderful debate as all the participants gathered in the auditorium to witness the award show in which three accomplished young physicists were laureated. Special congratulations to Wies Claeys, Jana Hohmann and Louise D'hondt as well as my ever-deepening gratitude to all the participants, presenters and sponsors who remain more than ever the cornerstone of medical physics in Belgium and made this an unforgettable experience for all involved.

For the organizing committee,
Jelmer Van Vooren, MPE AZ Sint-Jan Brugge

ESMPE School on Radiation Biology in Porto: An Early Career Perspective

Figure 1. Group photo of participants attending the ESMPE School on Radiation Biology in Porto.

From 19–21 February 2026, Porto hosted the ESMPE School on Radiation Biology, marking a significant milestone as the first EFOMP course ever held in Portugal (Figure 1). Organised in collaboration with APFISMED (Portuguese Association of Medical Physics) and FCUP (Faculty of Sciences of the University of Porto), the course brought together an international faculty and participants from across Europe for an intensive programme covering both the fundamental and clinical aspects of radiobiology.

The course offered a comprehensive overview of radiation biology, from molecular mechanisms such as DNA damage and repair to clinically relevant concepts including dose-response relationships, fractionation, and radiobiological modelling. As highlighted in the programme, topics such as the Linear-Quadratic Model, TCP/NTCP, and radiation effects at cellular and tissue levels formed a core part of the curriculum, making it highly relevant for medical physicists working in both imaging and therapy.

To better capture the experience from an early career perspective, we spoke with Catarina Dias, a first-year medical physics resident from Portugal who attended the course in person.

“For me, this course was an opportunity to build a strong foundation in radiobiology early in my training,” she explains. “The programme was very effective in addressing the core concepts that are essential across all areas of medical physics.”

For Catarina, the location of the course also played an important role. “The fact that it was the first time an EFOMP course was held in Portugal was a key factor. Beyond the logistical advantages, I was really motivated to experience the high standards of an ESMPE course and to connect

Figure 2. Participants and organisers during a social visit along the Douro riverside in Porto, enjoying informal networking and a traditional Port wine experience.

with international colleagues. It was something I didn't want to miss."

One of the strengths of the course was its balance between theory and clinical relevance. According to Catarina, "the course provided a robust theoretical foundation, especially for those of us with a limited background in radiobiology, and then built on that with the discussion of clinically relevant studies. That connection between theory and practice was very valuable."

The quality of teaching was another highlight. The international faculty delivered lectures that were both accessible and scientifically rigorous, fostering an engaging learning environment. "The lecturers were extremely knowledgeable and approachable," Catarina notes. "The content was insightful and very beneficial for my training." She also emphasised the importance of the venue, which contributed positively to the overall experience through its excellent facilities and learning conditions.

Although the course was offered in a hybrid format, Catarina chose to attend in person. "I find face-to-face interaction much more effective for learning," she says. "That said, the hybrid format remains a very positive initiative, as it makes the course accessible to those who cannot travel, and the online interaction tools seemed to keep remote participants engaged."

Beyond the lectures, the course also provided valuable networking opportunities. Participants were able to interact with peers and experts from different countries, contributing to a broader understanding of the field and strengthening professional connections across Europe.

Importantly, the experience reinforced the central role of radiobiology in clinical practice. "This course really helped me appreciate how fundamental radiobiology is to what we do," Catarina reflects. "It gave me a clearer understanding of how biological principles are integrated into treatment planning and clinical decision-making."

She also highlights the wider impact of EFOMP initiatives: "Courses like this are essential for building a strong European community of medical physicists. They help harmonise knowledge and standards while promoting collaboration. For countries like Portugal, where the profession is continuing to grow, these opportunities are incredibly important."

In addition to the scientific programme, participants had the opportunity to experience the unique atmosphere of Porto (Figure 2). A social programme included a visit to the historic riverside area along the Douro, offering informal networking in a relaxed setting. The experience concluded with a traditional tasting of Port wine, providing a memorable cultural complement to the academic content.

Catarina's advice to other early career medical physicists is clear: "Don't hesitate, just go. These courses are an excellent investment in your career. You gain knowledge, build connections, and come away with a broader perspective and renewed confidence."

The success of this first EFOMP course in Portugal highlights not only the quality of the ESMPE programme but also the growing engagement of the Portuguese medical physics community within the European landscape.

Catarina Dias holds a Master's degree in Medical Physics and is currently a first-year resident in Diagnostic and Interventional Radiology at the Portuguese Institute of Oncology in Porto.

Rita Albergueiro is a Medical Physics resident specializing in Nuclear Medicine at the Local Health Unit of São João. She holds a master's in medical physics and collaborates with the IPO Porto Research Centre in projects on Medical Physics, Radiobiology, and Radiation Protection. She joined EFOMP's C&P Committee in 2025.

Future of Nuclear Science Education and Radioisotope Supply Chain Development

Collaboration continues between Cross-YGN and the new EFOMP EC SIG Steering committee

Figure 1. Cross-YGN representatives Miia Hurskainen (EFOMP EC), Carlos Vázquez-Rodríguez "Charlie" (ENS-YGN), Viktoria Herzner (IRP-YGN), Mattia Baldoni (ENS), Albert Civit Bertran (FuseNET) at the workshop in NESTet2026.

The collaboration between Cross Young Generation Network (Cross-YGN) and the Early Career Special Interest Group (EC SIG) has started with the previous EC SIG Steering Committee. As the collaboration has been fruitful the new Steering Committee plans to continue this collaboration. Mattia Baldoni from European Nuclear Society (ENS) kindly invited representatives from the newly elected EC SIG Steering Committee to participate in two meetings, Nuclear Education and Training – NESTet2026 and International Radioisotope Supply Chain meeting – IRIS2026.

The first meeting, NESTet2026 was held in Brussels, Belgium between 2-4 of March. The conference gathered experts across universities, companies, agencies and other stakeholders that are involved in educating future workforce of nuclear industries. The interest in careers in the nuclear field has declined among the younger generation. Reasons for the declined interest and the solutions on how to attract young generation to become the future workforce were discussed for example in the "CrossYGN Workshop - Evolving Skills and Learning Tools for a Changing Nuclear Workforce." In the workshop, the representatives from ENS YGN, FuseNET Student Council, and International Radiation Protection – YGN (IRP-YGN) presented results from a survey "Learning Tools and Study Habits in Nuclear Science and Technologies", distributed to the young professionals of each YGN. The survey found that respondents favour hybrid learning in nuclear education, especially when combining strong theoretical foundations with digital tools such as simulations and programming, while using AI remains cautious. Among the key challenges linked to building a career in nuclear, respondents highlighted the field's complexity, limited hands-on experience, fragmented resources, and unclear learning pathways, which further complicate effective learning and skills development.

Figure 2. Participants of the workshop in group discussion.

The participants were then divided into groups, with the task to discuss and solve a problem based on realistic scenarios. Cross-YGN representatives facilitated the very fruitful discussions. Why does the nuclear industry not attract young generation? One reason that was brought up often was that the industry was declining for a few years, so young people did not see a future in a dying industry. Now that the nuclear sector is rising for example with new projects and designs, e.g. the Small Modular Reactors (SMR), new professionals from maintenance to engineers are needed, the interest from the younger generations is rising again.

Based on the interesting presentations heard in the IRIS2026 meeting (Leiden, The Netherlands, 20-21 April), nuclear industry is not declining but thriving. New isotopes, for medical and industrial purposes, are developed for an increasing amount of applications. Examples of new medical isotopes include terbium-161, which is part of the "Terbium Sisters." While research is ongoing, it is worth noting that the pharmaceutical industry will invest in isotopes that often have an uncertain supply chain. This means that facilities like research reactors and cyclotrons must be managed and maintained reliably, and new projects would be beneficial. This highlights the importance of securing not only infrastructures but also educated workforce, now and in the future.

Figure 3. Presenting the results of the group discussions.

Figure 4. From "Radionuclide production from bench to bedside – the example of Terbium 161."

Cross-YGN collaboration connects young talents across medical physics, engineering, fusion, and radiation protection. All of these need to be considered when trying to attract the youth to choose a career among nuclear sectors. From the target to end users, all professionals and their skills are needed and valued to ensure quality patient care and energy for the societies.

Miia Hurskainen, PhD, is an early career Medical Physics Expert (MPE) working in the Cancer Center in North Karelia Central Hospital in Joensuu, Finland. She is presenting the young generation of medical physicist residents and early career MPEs in both Finnish Association of Medical Physicists (FAMP) and EFOMP EC SIG.

Mattia Baldoni is Communications and Project Manager at the European Nuclear Society. Based in Brussels, ENS brings together more than 13,000 nuclear professionals from the academic world, research centres, industry, and authorities. ENS is also a long-standing partner of ENEN, and it is participating in the ENEN2Plus project, leading the Task 3.4. (Setting up networking cross-YG and cross-professional organizations).

ICMP-IT 2026: Innovating Medical Physics in Kyiv

Medicine, Physics, and Innovative Technologies: Advancing Healthcare

Figure 1. ICMP-IT 2026 Logo.

Following the autumn season of professional exchange and the integration of education, science, and practice — kicked off by the 6th European Congress of Medical Physics (ECMP 2026) — we are pleased to invite medical physicists, physicians, researchers, educators and students, equipment manufacturers and regulatory authorities, professional societies and all stakeholders to **the XII International Conference "Medical Physics – The Current Status, Problems, The Way of Development. Innovation Technologies" (ICMP-IT 2026)**: https://medphys.knu.ua/en.

Join us to present your achievements, explore the latest results, and exchange expertise in medical physics and related fields. The event will take place on **28–30 October 2026**. Due to participants' safety considerations following Russia's full-scale invasion, the conference will be held online, hosted by the Taras Shevchenko National University of Kyiv, Ukraine: https://knu.ua/en/.

Organisers:

- Taras Shevchenko National University of Kyiv
- European Federation of Organisations for Medical Physics
- Ukrainian Association of Medical Physicists and Engineers
- V. N. Karazin Kharkiv National University

ICMP-IT 2026 Core and Advantage

The history of ICMP-IT began with an international workshop held at Taras Shevchenko National University of Kyiv in June 2011 with support from the Swedish Radiation Safety Authorit https://www.stralsakerhetsmyndigheten.se/en/. Over the years, the conference's focus has crystallized into four main pillars that bridge clinical applications, research developments, technological breakthroughs, and professional training:

- **Section 1**: Learning and Training in Medical Physics.
- **Section 2**: Radiation Safety.
- **Section 3**: Biomedical Engineering.
- **Section 4**: Innovations in Medicine.

For more details, full program updates, and key deadlines, please visit our official website.

Professional Improvement and Mastery

ICMP-IT 2026 will feature specialized master-classes led by world-renowned experts. These sessions offer participants a unique opportunity to deepen their professional knowledge and acquire new skills in core areas of medical physics.

Cooperation and Partnership

ICMP-IT 2026 provides an optimal environment for building new professional networks and strengthening existing ones. Through dynamic dialogues during sessions, professional networking, and interdisciplinary discussions — within sections and post-conference meetings alike — the collaborations sparked here extend far beyond the event itself. Whether through formal sessions or virtual "coffee breaks", you will find ample opportunities to connect with colleagues from across Europe and beyond, fostering career success, professional development, and the advancement of healthcare.

Innovation & Development

A vital part of our programme includes representatives from leading manufacturers, suppliers, and industry partners. This segment is dedicated to showcasing technological breakthroughs, high-tech developments, and eco-friendly solutions, as well as optimized approaches for the effective use of medical instrumentation. Our focus remains on implementing safe methodologies, ensuring high-quality standards, and strictly adhering to safety protocols in medical procedures. Furthermore, a core mission of the conference is to nurture the medical physics community through dedicated focus on education, training, and mentoring.

Program and Registration

The program is currently being finalized and will be fully shaped based on the results of the registration process. Early registration is now open. We offer flexible participation formats to accommodate your schedule and requirements. Even if you have a demanding schedule, our diverse options will ensure you find a convenient way to participate.

Key Dates:

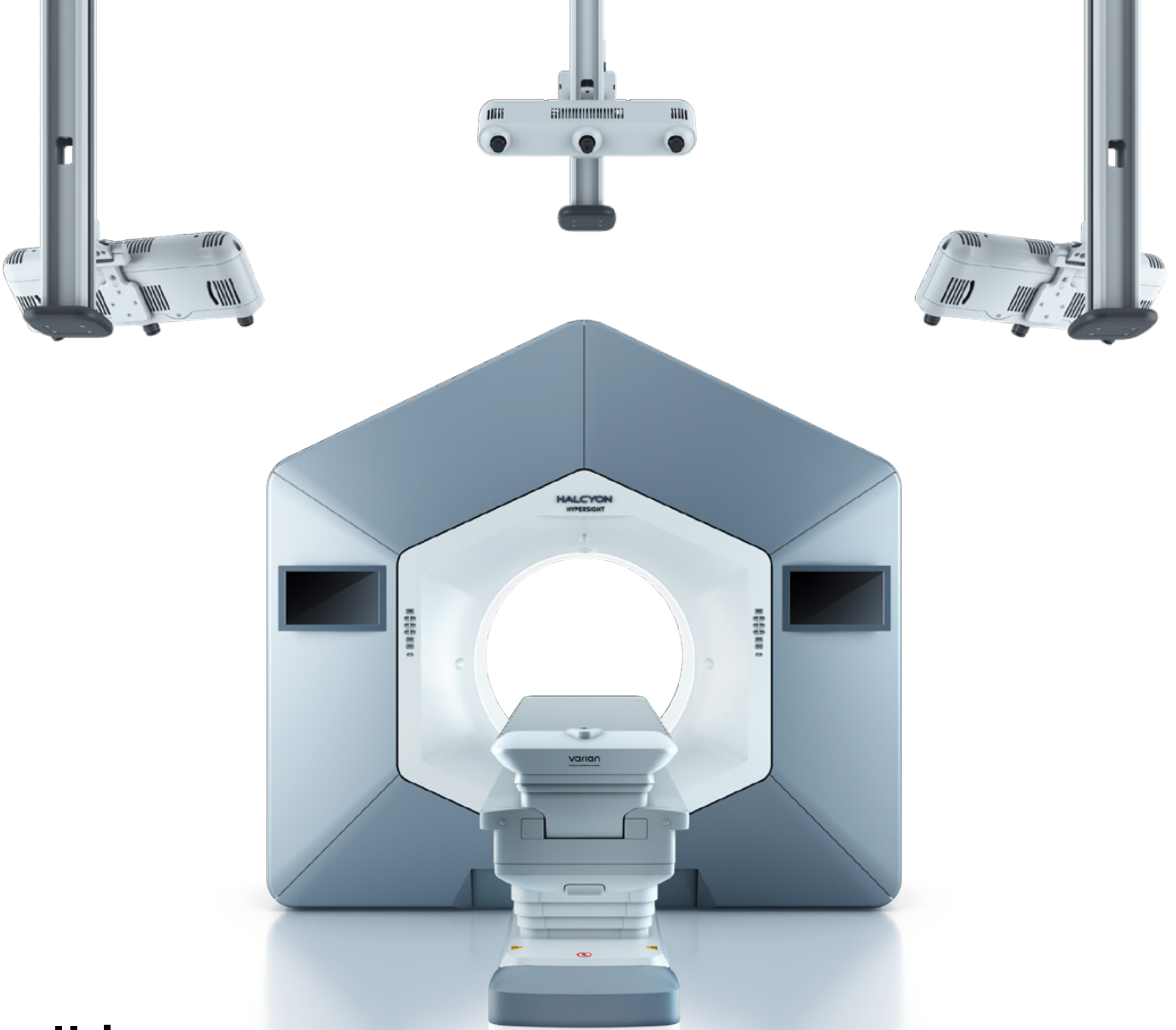
- Early Registration Deadline: **June 1, 2026**
- Regular Registration Deadline: **September 1, 2026**
- Late Registration Deadline: **October 9, 2026**

All necessary information is available on the official ICMP-IT 2026 website: https://medphys.knu.ua/en.

We look forward to welcoming you to ICMP-IT 2026. Join us for a meeting to remember!

Liudmyla Aslamova, Director of the Training and Research Centre for Radiation Safety, Taras Shevchenko National University of Kyiv, Ukraine; IAEA Expert; First Vice President of the Ukrainian Association of Medical Physicists and Engineers; Chair of the Conference Organising Committee.

Serhii Radchenko, Head of the Medical Radiophysics Department, Taras Shevchenko National University of Kyiv, Ukraine; Deputy Chairman of the Board of the Ukrainian Association of Medical Physicists and Engineers; Conference Managing Editor.



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Medical Laser Safety in Focus: A Baltic Training Initiative in Pärnu

Figure 1. Pärnu Hospital where the training will take place.

Medical lasers are widely used in modern healthcare, supporting diagnosis and treatment across ophthalmology, dermatology, surgery, urology, diagnostics and emerging high-intensity applications. Their safe and effective use depends not only on clinical expertise, but also on the contribution of clinical engineers, manufacturer representatives, laser safety professionals and, in some countries, medical physicists or Medical Physics Experts (MPEs). To support the development of competence in this field, the Estonian Society for Biomedical Engineering and Medical Physics in cooperation with the Latvian Association of Clinical Medical Physicists and Engineers and the Society of Medical Physicists from Lithuania are preparing a dedicated one-day training event on medical laser safety and clinical applications. The event will take place on 28 August 2026, from 10:00 to 16:00, at Pärnu Hospital, Ristiku 1, Pärnu, Estonia.

This regional cooperation event reflects a shared need to strengthen medical laser safety expertise across the Baltic countries and to create a practical platform for knowledge exchange between clinicians, clinical engineers, medical physicists, regulators and industry.

Medical physicists and clinical engineers working in hospitals are increasingly relevant to laser applications because they apply physics and engineering principles to ensure that advanced medical technologies are used safely, effectively and consistently. In the context of medical lasers, their contribution may include supporting compliance with international safety standards, advising on protective measures, assessing laser–tissue interactions, contributing to the selection of appropriate treatment parameters and supporting institutional risk management. Medical physicists and clinical engineers may also contribute to calibration, performance checks, quality assurance, acceptance testing and periodic testing of laser systems where appropriate. In clinical environments, they can help assess and mitigate risks such as thermal injury, unintended tissue damage, eye injury, fire hazards and exposure to laser plume. Their role is also important in training and supporting clinical staff, especially when new technologies, procedures or devices are introduced.

The need for this expertise is expected to grow as laser-based technologies become more advanced, more precise and more widely used in healthcare. As procedures become increasingly complex, interdisciplinary cooperation between clinicians, clinical engineers, medical physicists, manufacturers and regulators will be essential for patient safety, treatment effectiveness and sustainable clinical implementation. In research and innovation, medical physicists can also contribute to the development and optimisation of new laser-based therapies, including areas such as photodynamic therapy, image-guided procedures and future high-intensity laser applications.

The planned programme will combine laser physics, biological effects, regulatory requirements, institutional laser safety and practical clinical examples. Key sessions will address the establishment of laser safety programmes in hospitals and the relevance of the EFOMP Policy Statement on Medical Lasers, with contributions from Efi Koutsouveli, President of EFOMP.

A regulatory session with the Estonian State Agency of Medicines, Medical Devices Department will focus on requirements applicable to medical lasers within the European medical device framework. The clinical and practical sessions will cover laser safety in healthcare environments, including controlled areas, protective eyewear, plume management, fire safety, patient protection and typical misuse scenarios. Application-focused sessions are planned for ophthalmology, surgical therapy, tattoo removal and laser-based diagnostics, with attention to safety-critical parameters, training needs and maintenance considerations.

The programme will also include future-oriented perspectives on laser-driven technologies, including links to FLASH concepts and high-intensity laser research infrastructures such as ELI.

The day will conclude with a panel discussion on the next steps for medical laser safety in the region. The discussion will consider how professional societies, regulators, healthcare providers, medical physicists, clinical engineers and manufacturers can work together to improve training, safety culture and institutional preparedness. The event programme is intended to provide both practical knowledge and strategic direction for improving medical laser safety across healthcare institutions.

A key goal of the event is to build bridges between professional communities that often interact with medical lasers from different perspectives. Clinicians focus on therapeutic or diagnostic outcomes; medical physicists and clinical engineers assess safety, performance and technical risk; regulators define compliance expectations; and manufacturers provide device-specific knowledge, maintenance support and user training. Bringing these perspectives together is essential for the safe and sustainable use of laser technologies in healthcare.

The choice of Pärnu as the host city adds a distinctive setting to the event. Pärnu is one of the Baltic region's most attractive summer destinations, known for its soft sandy beaches, shallow coastal waters and relaxed seaside atmosphere. In summer, the city becomes Estonia's "summer capital", with open-air cafés, cultural events, street music and a lively yet peaceful atmosphere.

Pärnu offers an excellent balance of professional focus and informal networking. Its compact, walkable urban environment, seaside promenades, parks and characteristic wooden houses create a welcoming setting that feels personal rather than commercial. Participants can combine the seminar with beach relaxation, spa experiences, cycling, local restaurants and the seasonal energy of a Baltic summer town.

The Estonian Society for Biomedical Engineering and Medical Physics sees this training as a step toward a more systematic approach to medical laser safety in Estonia and the wider Baltic region. It also highlights the important role of medical physicists and clinical engineers in supporting the safe implementation of advanced medical technologies, not only in radiology and radiotherapy, but also in other technology-intensive clinical areas.

Joosep Kepler is a Medical Physics Expert in diagnostic and interventional radiology and Head of the Medical Technology Service at Pärnu Hospital. He is President of the Estonian Society for Biomedical Engineering and Medical Physics and is active in education, professional standards and international collaboration.

Kirill Skovorodko, PhD is a Medical Physics Expert at Vilnius University Hospital Santaros Klinikos and President of the Lithuanian Society of Medical Physicists.

Martins Piksis is a Medical Physics Expert, Head of Radiation Safety Department at Liepaja Regional Hospital, current President of the Latvian Association of Clinical Medical Physicists and Engineers.

Playing with the (in)visible: Inspiring the Next Generation of Medical Physicists

Every year, the University of Florence's science communication and outreach center, OpenLab, organizes *ScienzEstate (which basically means Summer Science*), a public event dedicated to sharing science with a broad audience especially school-age children and youth, but also with curious adults looking for fun. The initiative brings together a wide range of disciplines—physics, chemistry, mathematics, and more—with the goal of making scientific knowledge accessible, engaging, and relevant to everyday life.

For the past four years, medical physicists affiliated with the Azienda Ospedaliero-Universitaria Careggi (AOUC) and the University of Florence, under the guidance of Professor Stefania Pallotta, full professor at the University of Florence and head of the Medical Physics Unit at AOUC, have taken part in the event by setting up an interactive booth designed to introduce both adults and children to the fascinating, and often little-known, field of medical physics. Our idea has been to create activities suitable for all age groups while covering the full spectrum of the discipline—from ionizing radiation used in diagnosis and therapy to non-ionizing radiation and its applications.

Our stand is typically divided into several sections. One area is organized as an exhibition space, where over the years we have displayed phantoms used in radiotherapy and diagnostic imaging, allowing visitors to better understand how diagnostic imaging and therapeutic procedures are planned, carried out, and optimized in clinical practice. We have also presented a homemade scale model of a CT/Helical IMRT system, illustrating how, by adjusting the photon energy, the same technology can be used either for diagnostic imaging (CT) or for treatment (Helical IMRT), along with explanations of how these processes are applied in clinical practice and how treatment planning systems (TPS) work. Another section focuses on light, featuring interactive experiments and demonstrations that illustrate its role in medical treatments, such as innovative medical devices based on photonics to perform antibacterial phototherapy to overcome antibiotic resistance. Among them, an endoscopic system to illuminate the stomach cavity and eradicate the infection by *Helicobacter pylori.*

For younger visitors, we designed playful, hands-on activities that combine fun with learning. These include a radiography-themed memory game, as well as a puzzle activity where children reconstruct an image of the human body starting from fragments of a 2D X-ray image (fig2), along with a game focused on the decay of radioisotopes and one based on "writing with light" over a phosphorescent surface. Another popular game simulates radiotherapy: some children play the role of organs at risk (OAR), while

others act as photons, attempting to “hit” a target with a ball without touching the surrounding critical structures. Through play, complex concepts become intuitive.

For teenagers and adults, we proposed more structured and immersive experiences. One example is an escape room scenario in which participants must solve a series of clues to rescue a medical physicist trapped inside a bunker after a power outage. We also organized a treasure hunt that gradually reveals a hidden message about medical physics. In both cases, participants uncover new pieces of knowledge step by step, puzzle after puzzle, gaining a deeper understanding of the field along the way.

This year, in addition to updating and reimagining the children’s activities, we introduced something entirely new: a puppet theater. Through humorous and engaging dialogues, medical physics is brought to life on stage in a way that resonates with audiences of all ages, making abstract concepts more relatable and enjoyable.

Events like ScienzEstate play a crucial role in telling the story of our profession. It is important not only to explain what we do, but also to show the people behind the work and the impact it has on others’ lives—something that, unfortunately, remains largely unknown to the public.

Medical physicists often work behind the scenes, ensuring that everything—from complex machines to clinical processes—functions safely and effectively. Perhaps this is why the theme we chose this year represents us so well: the theater of the (in)visible. The idea carries a double meaning, referring both to the (in)visible particles we work with and to the way our role connects what is not immediately seen with tangible benefits for patients and society.

Dr. Ilaria Cupparo is a Medical Physics Expert (MPE) working in Radiotherapy at the Careggi University Hospital. She is the coordinator of the Young Group of the Italian Association of Medical Physics and Health Physics (AIFM), promoting activities for early-career medical physicists. Her interests include radiotherapy, artificial intelligence, and science communication.

Time2Adapt: Adaptive School for Medical Physicists

Adaptive radiotherapy (ART) is rapidly evolving, driven by advances in imaging, artificial intelligence (AI), and treatment delivery. However, implementing these technologies in daily clinical practice remains challenging. The Time2Adapt – Adaptive School for Medical Physicists was designed to bridge this gap, offering a training experience focused on practical implementation.

The school will take place on **10–12 September 2026 at Mater Olbia Hospital (Italy)** and is endorsed by EFOMP, ESTRO, and AIFM. It is, to our knowledge, the first course entirely dedicated to medical physicists with a specific focus on adaptive radiotherapy workflows, combining high-level lectures with extensive hands-on training.

High-Level Faculty and Evolving Programme

The course brings together an international faculty covering all major aspects of ART. The programme spans from fundamental concepts—such as AI principles and synthetic imaging—to advanced topics including real-time tracking, dose prediction, biologically-guided adaptive strategies, and emerging applications such as spatially fractionated radiotherapy and Direct-to-Unit workflows .

Rather than focusing only on theoretical advances, the lectures aim to provide a clear and structured view of how these tools can be translated into clinical practice. The inclusion of application-oriented sessions reflects the current evolution of ART from research to routine implementation.

Practical Training in a Real Clinical Environment

A key strength of the school is its strong emphasis on **hands-on training**. Participants will be divided into small groups and rotate across different stations, ensuring direct interaction with technologies and workflows in a structured setting.

Importantly, all activities take place within an active radiotherapy department. This allows participants to work with **installed clinical systems**, gaining insight into real implementation pathways. The goal is not only to observe, but to understand how adaptive workflows operate in daily clinical routine.

Vendor-Supported Deep-Dive Sessions

The course is supported by multiple vendors, who contribute to the practical sessions with **dedicated demonstrations and guided hands-on experiences**. This enables participants to explore different technological solutions in depth.

By exposing attendees to multiple approaches, the course promotes a **broad and practice-oriented understanding** of ART. This creates a valuable opportunity to compare tools, discuss limitations, and identify strategies that can be realistically implemented in different clinical environments.

A Course Designed for Medical Physicists

Time2Adapt is designed specifically for medical physicists, with particular attention to **early-career professionals**. Reduced registration fees for residents and young physicists aim to facilitate access to advanced training and support the development of future expertise.

The interactive format encourages discussion, exchange of experiences, and direct interaction with faculty, creating a dynamic learning environment that goes beyond traditional teaching.

Connecting the ART Community

While the primary focus is on training, Time2Adapt also provides an opportunity to bring together professionals working on adaptive radiotherapy in different contexts. By combining clinical practice, technological perspectives, and open discussion, the course naturally fosters connections and exchange across institutions.
In this sense, it represents a step toward building a **shared, practice-driven perspective on ART**, where implementation strategies can be discussed beyond specific platforms or local solutions.

Why It Matters Now

As adaptive radiotherapy becomes increasingly accessible, the need for structured and practical training is more important than ever. Many centres have access to advanced technologies but still face challenges in integrating them into routine workflows.

Time2Adapt addresses this need by combining **high-level education, real clinical exposure, and hands-on experience**, providing participants with the tools to move from theoretical knowledge to practical implementation.

Registration link: here

Contacts:
davide.cusumano@materolbia.com,
mfusella@casacura.it,
lorenzo.placidi@policlinicogemelli.it

Marco Fusella: Marco Fusella is a clinical medical physicist at Policlinico di Abano Terme (Italy). His work focuses on adaptive radiotherapy, MRI-only workflows, and AI applications in treatment planning. He is actively involved in research, education, and international collaborations in advanced radiotherapy techniques.

Davide Cusumano: Davide Cusumano is chief medical physicist at Mater Olbia Hospital (Italy). His research focuses on adaptive radiotherapy, artificial intelligence, and innovative treatment strategies. He is actively involved in national and international educational initiatives and clinical implementation of advanced radiotherapy workflows.

Lorenzo Placidi: Lorenzo Placidi is a medical physicist at Fondazione Policlinico Universitario A. Gemelli IRCCS (Italy). His work focuses on adaptive radiotherapy, biologically guided treatments, and advanced imaging. He is involved in research and education aimed at improving clinical implementation of innovative radiotherapy approaches.

Upcoming Conferences and Educational Activities

This list was correct at the time of going to press.
For a complete, up-to-date list, please visit our **EVENTS WEB PAGE**

Jun 17th, 2026 - Jun 19th, 2026
64ème Journées Scientifiques de la SFPM
(French MP Society)
Lyon, France

Jul 7th, 2026 - Jul 9th, 2026
10th EUTERP Workshop - Competence-based approaches in radiation protection
Villigen, Switzerland

Aug 24th, 2026 - Oct 2nd, 2026
7th Summer School in Medical Physics 2026
Heidelberg, Germany or Online

Sep 10th, 2026 - Sep 12th, 2026
Time To Adapt - Adaptive school for medical physicists
Sardinia, Italy

Sep 16th, 2026 - Sep 19th, 2026
57. Jahrestagung der Deutschen Gesellschaft für Medizinische Physik
Bamberg, Germany

Sep 23rd, 2026 - Sep 26th, 2026
The 6th European Congress Of Medical Physics (ECMP2026)
Valencia, Spain

Oct 5th, 2026 - Oct 9th, 2026
International Symposium on Standards, Applications and Quality Assurance in Medical Radiation Dosimetry (IDOS 2026)
Vienna, Austria

Oct 8th, 2026 - Nov 20th, 2026
Hybrid Courses in the Field of Particle Therapy
Heidelberg, Germany or Online

Oct 28th, 2026 - Oct 30th, 2026
The XII international conference "Medical physics – the current status, problems, the way of development. Innovation technologies"
Kyiv, Ukraine

Oct 29th, 2026 - Oct 31st, 2026
EFOMP School for Stereotactic Body Radiotherapy
Cluj, Romania

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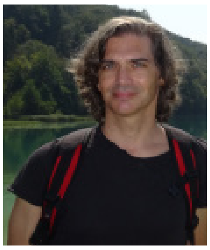

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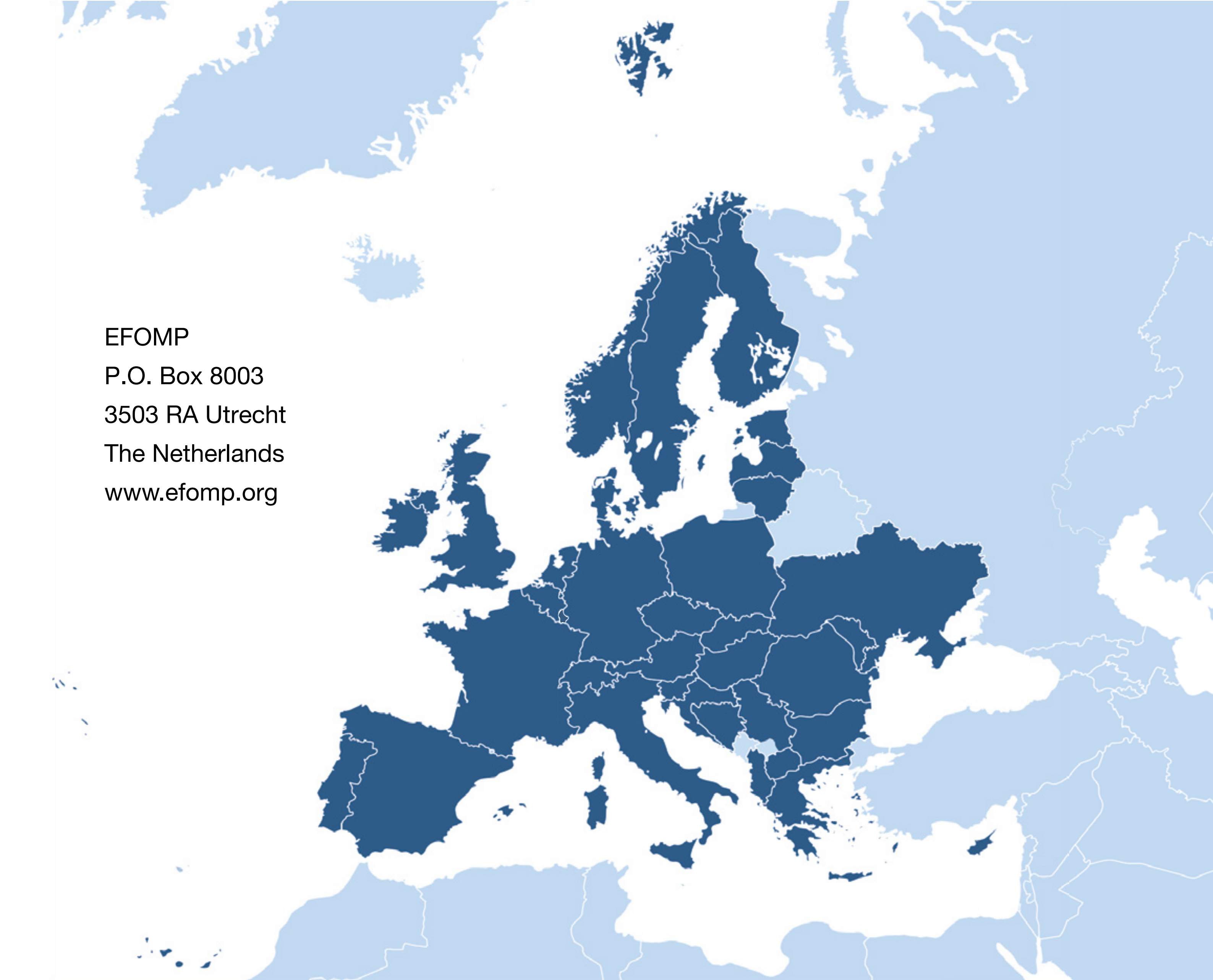

EFOMP
P.O. Box 8003
3503 RA Utrecht
The Netherlands
www.efomp.org

EFOMP

EUROPEAN FEDERATION
OF ORGANIZATIONS
FOR MEDICAL PHYSICS

The European Federation of Organisations in Medical Physics (EFOMP) was founded in May 1980 in London to serve as an umbrella organisation for medical physics societies in Europe. The current membership covers 37 national organisations which together represent more than 10.000 medical physicists and clinical engineers working in the field of medical physics. The office moved to Utrecht, the Netherlands, in January 2021.

The motto developed and used by EFOMP to underline the important work of medical physics societies in healthcare is “Applying physics to healthcare for the benefit of patients, staff and public”.

For more news and information about EFOMP activities please follow us on social networks or visit our website

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