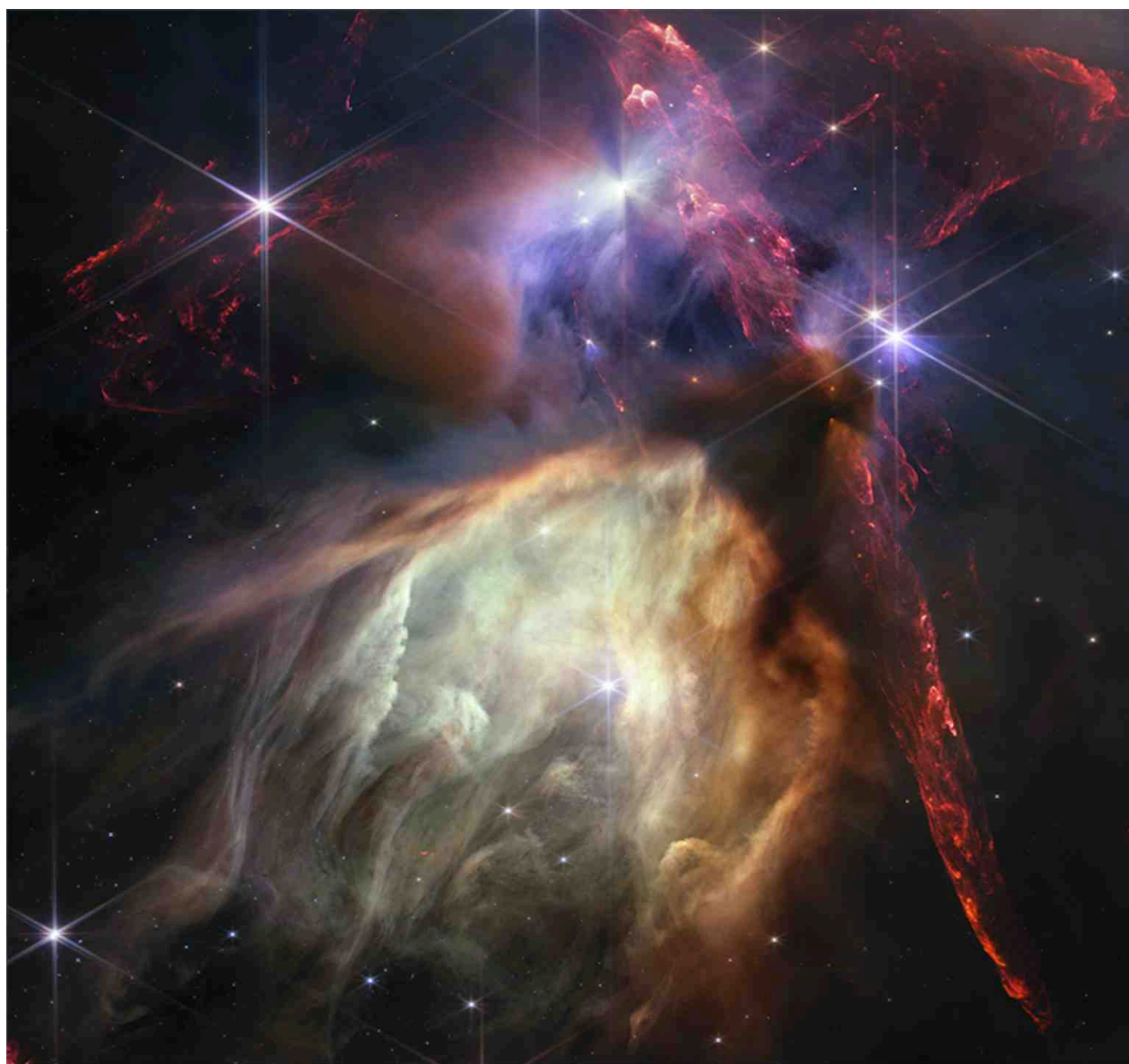


# BULLETIN

August 2023



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Cover Image: an active star-forming region in the Rho Ophiuchi cloud complex, 390 light years away from Earth.

Source: NASA / James Webb Telescope

## Letter from the Editors



Dear colleagues,

the spring and summer months are always a bit special. For those of us whose mood is influenced by weather, the sustained visibility of our old yellow star, together with the increase in temperatures, provides a much-needed energy boost; and some days, or possibly weeks, of holidays usually take care of healing whatever is left. Shifts become slightly lighter, papers come out a bit easier than before, and we might even come up with new ideas. And, of course, there's the August issue of our Bulletin!

This issue contains five new reports from meetings, schools and congresses. Each of them conveys not only scientific information but also passion, appetite for direct interactions and a sense of enrichment derived from the social aspects of our careers, something that only this year we can again appreciate in its full extent. And while we are still enjoying the summer and some well deserved break, in the back of our minds we're also thinking to our next meetings planned for this Autumn, from Working Groups to the Annual Meeting – as usual the main events are listed on the back cover and the full list is available on the website.

A small reminder regarding the 56<sup>th</sup> SSRMP Annual Meeting: if you are considering submitting an abstract, don't forget that the deadline is September 4<sup>th</sup>!

We're taking advantage of this summer edition to bring you a new type of article, which we hope to be able to repeat in the future. No Swiss spotlight in this bulletin, but a journey through North and South America, with an interview with an enthusiastic expatriate. We introduce you to Karla, who helped set up a radiotherapy department in Chile.

We received some positive feedback regarding the crosswords (thank you all!) therefore we decided to continue with the "Off-duty" column and try to provide a different puzzle at every issue. This time you will find on page 24 a CT-themed version of "spot the differences".

From our air-conditioned but underground working desks, we wish you a happy continuance into the summer and hope to meet you all at the next Meeting!

Davide & Marie

## PRESIDENT'S LETTER



Dear colleagues,

a lot has happened since our last bulletin in April 23. I think I will not describe here everything because it will be too long but let me just address some of the subjects.

The first one is... summer! Yes, summer is here, with its long and warm days. If you are a medical physicist in imaging, summer also means the Swiss Congress of Radiology (SCR). This year the SCR'23 took place in Davos from the 22<sup>nd</sup> till the 24<sup>th</sup> June. Very nice and interesting topics were presented. As you might know, the president of the SSRMP is a member of the scientific committee. So, our former SSRMP president, Michael Fix, could provide many ideas for the congress this year for the joint sessions with the other societies: SGNM-SSRMP with a session about "quantitative imaging in PET/SPECT", SGR-SSRMP with a session dealing with "Role of MRI in a Multi-Imaging Setting" and the SVMTRA-SSRMP session addressing the topic of "Image Quality for CT". Following Michael's

work, I had the task to contact speakers and moderators. I really appreciated the enthusiasm and positive answers from all contacted people. Moreover, during the scientific session of medical physics and basic science we had many high-quality presentations from our colleagues on very different topics. Next year the SCR'24 will take place in Geneva, don't miss the opportunity to participate!

Even more recently than the SCR'23, the AMP meeting took place in Bern organized by Maud Jaccard. As usual there was a very interesting scientific presentation, this time given by Sara Abdollahi (USZ) about "Small field dosimetry audits". We also had the opportunity to listen to the work that has been performed in the working groups where many of our young colleagues are now involved. Thank you again to these working groups leaders and participants for their involvement in these very useful projects. But the meeting was not only interesting because of the presentations, but also because of the nice opportunity to

## PRESIDENT'S LETTER

exchange in person with the colleagues, especially during the nicely organized coffee break. During this same meeting, I took the time to clarify that the new board is in place since the 22<sup>nd</sup> of December and remind everyone that in the society everyone can participate and give their ideas and opinions. So, once more, let me say that don't hesitate to talk to the board!

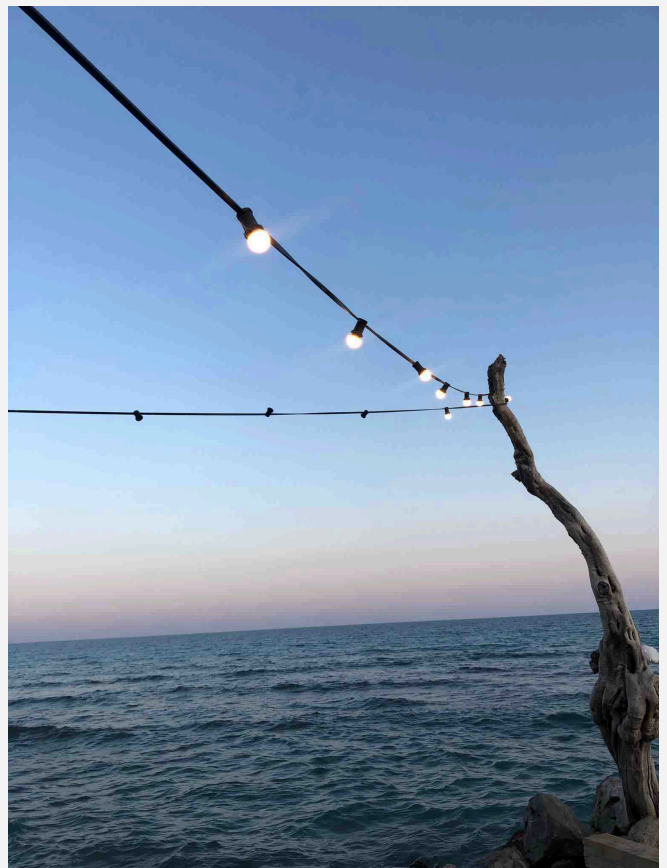
The board has also been busy to revise the nice update version of the annex IV of the SSRPM specialisation in medical physics, prepared by the education committee. The document deals with the examination board, admission conditions, nature and scope of the examination, summary of process and deadlines, examination results and appeals. Moreover, we have been asked to give our feedback concerning the partial revision of the radiation protection ordinance. The revision concerns the attribution of the expenses for the handling of radioactive waste, in particular for the distribution of iodine tablets, the decontamination of contaminated areas, for nuclear waste disposal and for radioactivity release surveillance.

The society keeps providing their members with the possibility to enlarge or revise their knowledge. Indeed a very dense program is already planned for the rest of this year, starting with a course in Nuclear Medicine from the 25<sup>th</sup> till the 27<sup>th</sup> of September and the joint continuous education day with SASRO on "Potential and Future of Spatially

Fractionated Radiotherapy" which will take place on the 27<sup>th</sup> of October in Bern and. Moreover, our SSRMP annual meeting will take place from 30<sup>th</sup> of November till 1<sup>st</sup> of December in Luzern. Thank you to all the organizers of these events!

In the meanwhile and waiting for these nice events to come I wish you all a nice and relaxing summer!

Marta Sans Merce  
SSRMP president





# SCIENCE

## AMP Meeting

Bern, 26<sup>th</sup> of June 2023

The first AMP meeting of this year 2023 took place the 26<sup>th</sup> of June in Bern. This session was specially dedicated to the presentation of the various open working groups. Before that, Marta Sans Merce presented the composition of the various SSRMP boards and contact persons. She strongly encouraged us not to hesitate to intervene, to be a force of proposal even if we're not on one of the boards. The message got through: *Talk to the board!*



The various SSRMP activities currently underway concern, for example, the society's involvement in the SCR, EFOMP and, more directly, the revision of Appendix IV of the guidelines for the SSRMP specialization in medical physics, which concerns the examination regulations. It was also an opportunity to announce that the next salary survey will take place in autumn 2023.

After this, Sara Abdollahi presented her SRS dosimetry intercomparison project (see page 6).

After a pleasant coffee break, the chairs of the working groups presented the progress of their work. Some working groups have been completed or are in the process of being finalized: the recommendation n°9 about reference dosimetry in low and medium energy x-ray beams was published in May 2023 in ZMP. The RP02MPP (for transfer of the radiation protection ordinance to medical physicist practice)

group wrote the recommendation n°17 about reporting imaging dose in radiation therapy currently in revision. And finally, recommendation n°19 about quality assurance of systems for SABR should be submitted soon for publication. Some other groups are currently in progress, or are just getting started. Two working groups are seeking to clarify the role and tasks of the medical physicist in X-ray imaging and nuclear medicine respectively. Several physicists working in imaging field took part in a survey which revealed that they are mainly involved in the most irradiating procedures: CT, fluoroscopy, cardiology. One group is focused about the quality assurance of treatment planning system, another one about the MR-only workflow in radiotherapy; one will be tasked with establishing a methodology for classifying fluoroscopy equipment, while another will be seeking to harmonize practices concerning the cumulative dose of radiological examinations.

The list of active WGs is reported below, details are available on the website: <https://ssrpm.ch/the-society/working-groups/>

Stereotactic convergent beam irradiation	A. Mack
RP02MPP	P. Manser
Quality control of TPS	D. Patin
MR-only radiotherapy	L. Milan
Cumulative Dose	E. Samara
Nuclear Medicine Physics Tasks	T. Lima
Role and tasks of MP in x-ray imaging	D. Racine
DRLs in fluoroscopy	M. Nowak

**Save the date:** the next AMP meeting will take place in Bern on the 15<sup>th</sup> of December.

# SCIENCE

## Dosimetric Intercomparison for Stereotactic Radiosurgery for multiple brain Metastases

The dosimetric intercomparison project for Stereotactic Radiosurgery (SRS) for brain metastatic tumors has been designed at the University Hospital of Zürich and endorsed by the Swiss Society of Radiobiology and Medical Physics. This initiative aims to foster collaboration among radiotherapy centers and enhance SRS treatment planning and delivery accuracy and consistency.

The intercomparison project brings together multiple radiotherapy institutions across Switzerland (at the moment 25 institutions with 31 machines), fostering collaboration and knowledge sharing among experts in the field. By participating in this intercomparison project, institutions will have a unique opportunity to assess the quality of their SRS treatment planning and delivery and identify areas where improvement may be needed.



*Dose measurement with gafchromic EBT3 film and ion chamber in an anthropomorphic head phantom in different dose delivery systems.*

SRS is a highly precise and specialized radiation therapy that delivers a high radiation dose to a small target volume, typically in a single or few treatment fractions. As this treatment modality becomes increasingly popular and widespread, it is crucial to establish and maintain high standards of quality assurance to optimize patient outcomes. The project encompassed various aspects of SRS treatment, including dose calculation algorithms, treatment planning techniques, imaging protocols, treatment delivery systems, and quality assurance procedures. By comparing the results of dose calculations and measurements, we aim to identify discrepancies or variations and address potential sources of error or uncertainty.

It is still possible to join the project: if there are centers that are interested in participating but have not been contacted yet, we kindly request that they get in touch with Sara Abdollahi at [sara.abdollahi@usz.ch](mailto:sara.abdollahi@usz.ch). We would be delighted to provide them with all the necessary details and believe that participation in this endeavor will contribute significantly to the advancement of SRS treatment in Switzerland.

At the end of the intercomparison project the results will be summarized for the community as a scientific publication as well as in the SSRMP bulletin.

Sara Abdollahi, USZ

## Winter School in Medical Physics: "CT and Intervention"

Pichl, 23<sup>rd</sup> - 28<sup>th</sup> of April 2023

From 23 to 28 April 2023, the course "CT and Intervention" took place at the Winter School in Medical Physics in Pichl (Steiermark), Austria. The winter school is an annual event organized in cooperation by the DGMP, OGMP, and SSRMP. Its continuous education courses serve as an opportunity for refreshing one's professional knowledge, gaining new insights into current developments in the field of medical physics and beyond, as well as engaging in fruitful exchanges with one's peers.

"CT and Intervention" was attended by roughly 60 participants from Germany, Austria, Italy, and Switzerland, most of them working in diagnostic imaging. But, a substantial number were from the field of radiation therapy. The course was chaired by Marc Kachelrieß (DKFZ, Heidelberg) and run by eight different lecturers from Germany, Austria, and Switzerland.

The school was kicked off by a refresher on the fundamentals of computed tomography (CT) and cone-beam CT given by the chairman. Switching gears, Josefin Ammon (Klinikum Nürnberg) gave a lecture on the different, scientific as well as legal aspects of clinical and technical quality assurance of CT imaging. She and Alexander Schegerer (Hirslanden Group) then dedicated two sessions to the background and implementation of radiation protection principles, application of dose of reference values, notification of radiation events, and to the general legal framework for medical physics in diagnostics in Germany and Switzerland. Poignant feedback and detailed questions from the audience proved how important these topics are in daily routine. It was also interesting to see that the two countries still have their own approaches with regard to the duties and responsibilities of medical physics experts.

After the two lecturers completed their four-sessions tour de force on the second day with an overview of current dose management system Bernhard Renger (TU München)

took over with an in-depth review of fluoroscopy. He closed the day with a lecture on the complex set of problems of dose estimations in interventional medical imaging. Given the continuous increase in the number of surgeries relying on real-time imaging, such as in angioplasty and cardiology, over the past years the need for dose optimization and adequate training of personnel was particularly stressed by the lecturer who presented the most recent developments and compared them to historical data.

Next on the menu were different applications of so-called spectral CT, such as dual and multi-energy CT as well as photon counting CT. Marc Kachelrieß explained the different techniques and comparing their pros and cons side-by-side, emphasizing also the various implementations by the most common vendors on the market. Especially, the critical usage of filters in general and the benefits w.r.t. patient dose in particular were discussed in great length. After a session on radiation protection in interventional medical imaging by Christoph Hoeschen (University of Magdeburg), Bernhard Renger returned for two more sessions. The first one was on automated exposure control in interventional devices. He covered both the regulatory as well as the technical aspects, comparing the results obtained with different devices. New optimization strategies that focus less on the entrance skin dose of the patient and more on the organ dose as well as on the dose to the medical personnel and real-time image processing during interventions, which was the topic of the last session, are opening up new challenges for the medical physicists as the audience happily noted.

The fourth day began with a refresher on CT dose optimization by the same speaker. This was followed by a fascinating session on computational image analysis given by Wolfgang Birkfellner (University of Vienna) who opened the can of worms that are represented by DICOM data and the intensity transfer function.





*Hotel Pichlmayrgut, Pichl (Austria)*

Funnily, all lecturers covering image quality aspects agreed on the importance of noise reduction but stressed that radiologists need to accustom to these changes because they typically associate noise with information. The only disappointment of the winter school course came in the form of tediously long and uninformative lecture on a CT-based lung cancer screening programme in Germany given by **Theresa Hunger (BfS)**.

On the last day, the audience was first treated to a lecture by **Karls Stierstorfer** from Siemens on image quality evaluation in non-linear systems. This was followed by the ever hot topic of deep learning in CT imaging in which **Marc Kachelrieß** challenged the attendees to go down the path of training neural networks to work on imaging data in order to fast track analysis of newly obtained images, a field in which his own research group has made some pioneering work. Closing this last session, the next winter school was announced for March 2024.

Overall, the organizers took great care of giving the participants ample time to network. To that end, two social gatherings took place, at the beginning and at the end of

the winter school. Additionally, an industry presentation by Canon on their Aquilion CT series was included as a complimentary event. Furthermore, the structure of the course programme with two daily sessions and a four-hour long break in between helped to digest and evaluate the contents.

The venue, the four star hotel Pichlmayrgut located close to the famous Austrian skiing resort of Schladming, offered plenty of space for discussions, which could become especially heated when they were continued in one of the many saunas or pools of the hotel.

In a nutshell, attending the Winter School in Medical Physics in Pichl is highly recommended to anyone wishing to broaden their professional horizon and meet up with colleagues from abroad. Obtaining the mandatory continuous education points by the SSRMP is an added bonus.

Alexandros Guekos,  
PhysMed Consulting GmbH

## Winter School in Medical Physics: "Image-guided Adaptive RT"

Pichl, 1<sup>st</sup> - 5<sup>th</sup> of May 2023

The third course of this year's "Pichl Winterschule" convened on the first week of May, focusing on adaptive radiotherapy (ART). This annual conference brought together 55 participants from Germany (DGMP), Austria (OEGMP), and Switzerland (SGSMP). The event took place at the Hotel Pichlmayrgut, a luxurious venue that offers a plethora of wellness activities and beautiful scenery. Despite the end of the ski season, attendees enjoyed the beautiful weather and went hiking in the nearby regions in the free afternoons.

The week-long course featured ten distinguished speakers who shared their expertise on various topics in ART. The course director, **Jenny Bertholet** from Inselspital of Bern, put together a well-balanced and high-quality program that did not solely focus on the new generation of linear accelerators, but also delved into cutting-edge advances in motion management techniques, such as gating, tracking, and surface-guided systems.

Monday's lectures included introductory presentations by **Jenny Bertholet**, **Petra Trnková** and **Esther Troost**, who provided a comprehensive, physicist-friendly overview of the available clinical data regarding the patient benefit of adapted workflows for various tumor entities as well as the state-of-the-art technologies in adaptive radiotherapy.

Tuesday's sessions were devoted to surface- and image-guided radiotherapy. **Martin Buschmann** noted that while surface-guidance radiotherapy is helpful, it does not replace image-guidance radiotherapy. Instead, the two techniques are complementary. **Lotte Wilke** from the University Hospital of Zürich (USZ) shared her experiences with the MR-linac and MR-guided ART, in particular the processes involved in the online adaptation, i.e. while the patient is on the treatment couch. It became clear that user experience, technological advances and optimized workflows are crucial to reduce the duration of these processes and improve the efficiency as well as the patient's experience.

The patient's perspective was also the focus of the presentations of **Madalyne Chamberlain** from USZ, who highlighted the importance of patient satisfaction and ensuring that patients are well-informed about the entire treatment process. She emphasized that patients have a better experience when they feel that they can actively contribute to a successful treatment.

The use of artificial intelligence (AI), which is invariably linked to ART (e.g. auto-segmentation or synthetic CTs), was summarized by **Christopher Kurz** on Wednesday. Although AI tools can be of great use in the ART context, they do not (yet) provide a deliverable plan, as it does not take into account the MLC sequencing.

**Ye Zhang** from Paul Scherrer Institute (PSI) tackled the challenges of ART for proton therapy on Thursday. In proton therapy, changes in anatomy can have a much higher impact on the dose distribution due to shifted Bragg peaks. Zhang addressed the unresolved issue of dose accumulation, which has yet to receive a commercial solution.

Deformable image registration (DIR) is irreplaceable for 4D dose calculation and dose accumulation, to account for intra- and inter- fractional motions. Quantifying DIR error is imperative, since any geometric errors from estimated deformable vector fields (DVF) can directly lead to errors in the involved dose distribution. However, this represents a challenge due to the lack of DVF ground truth. Although uncertainties cannot be entirely eliminated, one can still attempt to analyze the "worst-case" scenario! **Niklas Wahl** illustrated how robust optimization could use different error scenarios to minimize the difference between planned dose and effectively delivered dose when setup uncertainties and organ motions are taken into account.

Intrafraction motion is another source of uncertainty that can impact treatment outcomes. Motion management techniques developed over the past few decades were

# Issues Of Interest



*Swiss-representative course participants.*

explained clearly by the motion experts Jenny Bertholet and Christoph Bert during their talks on Tuesday and Friday. Gating, tracking and real-time ART planning represent different strategies able to deal with motion happening at all time scales.

Besides the high-quality lectures, the Pichl Winterschule provided a unique opportunity to network with colleagues

from Germany, Austria, and Switzerland, and the Hotel Pichlmayrgut offered an excellent setting for this conference. As one speaker noted in one of the discussions: “Adaptive radiotherapy means that we have to adapt”.

Chengchen Zhu, Inselspital Bern  
and Marius Eichler, Kantonsspital Aarau

## *Winterschule for medical physics in Pichl will be back in 2024!*

After a “Summer Edition” in 2022 and a “Spring Edition” this year, the Winterschule will return to its original time frame in March. There will be courses on nuclear medicine (10.-15.03.2024), optics (17.-22.03.2024), and radiation therapy (17.-22.03.2024).

Registration for the courses will open in September 2023 – stay tuned at [www.winterschule-pichl.de](http://www.winterschule-pichl.de).

On behalf of the “Kuratorium” – Dr. Reto Küng, Inselspital Bern

## 61èmes Journées Scientifiques Société Française de Physique Médicale Nancy, 7<sup>th</sup> - 9<sup>th</sup> of June 2023

The 61<sup>st</sup> scientific days of the SFPM (French Medical Physics Society) hold in Nancy (France) from the 7<sup>th</sup> to the 9<sup>th</sup> June 2023. Swiss medical physics was well represented with colleagues from different French-speaking Switzerland centers!

Parallel sessions on radiotherapy, medical imaging and nuclear medicine were organized.

About radiotherapy, different hot topics were covered:

- motion management inter and intra fraction session was the place to discuss the two international guidelines ESTRO and AAPM for surface guided radiotherapy and clinic feedback for breast, cervix and heart.
- quality assurance in terms of process and metrology particularly on evaluating patient treatment plan
- evaluation of new commercial solutions for automatic contouring and registration
- new treatment techniques with updates on flash and MR-only.

We also had the opportunity to attend sessions on more general topics such as the role of the medical physicist in the organization of clinical trials, in the management of the cybersecurity in hospital environment, or for instance about the difference between radiology, nuclear medicine and radiotherapy. Other interesting studies on treatment planning, stereotactic dosimetric plan and material QA... were also presented in poster session.

In parallel, different sessions were devoted to medical imaging and nuclear medicine. We can remember a well-run seminar on the last technologies of CT, dual-energy

CT and photon-counting. The role of the physicist, its implication in the use of new tools and the collaboration with radiologists were highlighted.

A question arises as to whether AI algorithms should be properly evaluated before being introduced directly into clinical practice: there is a lack of large-scale studies. A radiologist from Nancy presented his experience of computer aided diagnosis tools (CAD) that can be used in clinics to detect fractures, strokes or pulmonary nodules on CT, etc... : his experience shows that AI is often 'better' than he is. According to him, radiologists will not be suppressed in the future, but their numbers will be much reduced because there are still many doubtful cases, uncommon locations/diagnoses for which AI does not currently provide answers.

Another abstract session was focused on interventional radiology, image quality and dose assessment. Particularly, CHUV was invited to present their last methodology to assess image quality on fluoroscopy systems for moving objects.

We can notice the Swiss works presented:

- Evaluation of the image quality of moving objects in fluoroscopy – A.Viry, CHUV
- Synchrony modality on Radixact: Characterization of dose profiles and development of an End-to-End methodology – A.Nagy, Clinique Générale-Beaulieu
- Change of TPS: which methodology to adopt in order not to traumatize a radiotherapy department? Experience on locoregional left breasts treated in VMAT technique – C.De Marco, Clinique de Genolier



# Issues Of Interest

In order to close this event, prizes were awarded to:

- S. Tahri for her work about a deep learning model to generate synthetic CT in MR-only prostate radiotherapy treatment (best poster)
- L. Lemaire for his work on Dosimetric impact of cardiac motions for CyberKnife stereotactic arrhythmia radioablation (best young physicist presentation)
- M.Pavoine for his work on A methodology and clinical application of a population based input function in whole body dynamic PET-18FDG of metastatic melanomas treated by immunotherapy (best presentation)

This congress was also an opportunity for very prolific exchanges with colleagues and vendors visiting the technical exhibition. We return to our services without forgetting to bring back some macarons and bergamot sweets for colleagues :-)

See you next year in Dijon (France) for the 62<sup>nd</sup> scientific days!

Anaïs Viry,  
CHUV Lausanne

Nicolas Perichon and Cedric de Marco,  
Swiss Medical Network



*From Left to right N.Ruiz Lopez, A.Nagy, A.Marzin, C.De Marco, N.Perichon, G.Presicce, A.Avakian, S.Bressan, A.Viry, C.Tata Zafarifety.*

*Many of the presentations can be viewed in replay via the following links:*

- <https://www.canalc2.tv/video/16392>
- <https://www.canalc2.tv/video/16365>



# Issues Of Interest

## Swiss Congress of Radiology - SCR'23

Davos, 22<sup>nd</sup> - 24<sup>th</sup> of June 2023

I began my journey in medical physics two years ago and am currently training to obtain my title next year, so I'm at an early stage in my career and I still have a lot to learn about medical imaging. It was my first time at the Swiss Congress of Radiology, which seemed like a valuable opportunity to expand my knowledge and explore new aspects of radiology.

I was very curious to attend a congress where the different medical imaging professionals are represented, such as radiologists, physicians, radiographers, and medical physicists. I was truly inspired by the many topics covered, like paediatric radiology or quantitative imaging in nuclear medicine, whether through presentations, courses, or posters, exploring many aspects of radiology. Thanks to the remarkably complete program, the relevance of the topics covered, and the interesting educational content, I was able to enhance my understanding of the different issues and the advances in the field of radiology, and I was also able to get an overview of the many projects underway throughout Switzerland. All the things I was able to learn will be useful

to me in my everyday clinical practice and in my training as a medical physicist, like for instance the session on image quality for CT.

Such an event is also a good opportunity to socialize with other medical professionals, which is even more important for those in the early stages of their career, as it is the case for me. Additionally, I had the privilege to briefly present our working group's efforts in proposing DRLs in mammography for Switzerland. It was a great pleasure to be able to share our results, and I really appreciated the insightful exchanges that followed this presentation, demonstrating the interest and enthusiasm that our work has aroused, which is very stimulating.

I am truly grateful to have been able to take part in this event, and I would like to congratulate and thank all the organizers for their excellent work and commitment.

Laura Dupont, HUG



*One of the many socialization moments of SCR'23*

## In Memoriam: Beat Leemann (16.9.1943 - 25.4.2023)

Due to his retirement in 2008, not many SSRMP members might remember Beat Leemann personally. However, if you have dealt with bunker shielding calculations of a Varian accelerator in the past 15 years, then you will have been exposed to his legacy. What he had developed for the bunker shielding calculations at Luzerner Kantonsspital became Varian's tool in Switzerland for their shielding calculations. Not only Varian, but also the Federal Office of Public Health benefited from his vast accelerator knowledge and experience.

Beat grew up in Basel where he later studied physics and obtained his Ph.D. In the 70s he moved to the US, first to Maryland for a postdoc and later to California where he settled for 15 years and worked at Berkeley Lab. He was engaged in accelerator design and development, as well as accelerator operation.

After a year at CERN in the 80s and a subsequent return to California, the Leemann family, with two sons born in the US, moved back to Switzerland for good towards the end of that decade. Beat found work at the accelerator division of BBC which was soon to be ABB. The new company decided to part ways with its accelerator division and sold it to Varian (hence "Varian Baden", properly Varian Medical Systems Imaging Laboratory GmbH (VMS iLab)). As Beat told the story, Varian didn't see a future for him in the company in Switzerland, but offered him a position in California. Having moved his family across the Atlantic three times in about as many years, he politely declined.

Through his work with BBC/ABB, he met Richard Greiner who was then head of the newly established department of radiation oncology in Lucerne, which at the time was operational in literal bunkers (military's protected operating theaters in the basement of the hospital), while a brand-new building was erected for a modern radiotherapy. In this transitional phase from being a Cobalt sub-unit of radiology to becoming an independent radiation oncology department, Beat Leemann became the first physicist employed by the Lucerne hospital and was able to contribute to the creation of the new department which was inaugurated in late 1992 and whose fate he determined considerably.



Beat didn't cut all ties with medical physics after his retirement. He was involved in prostate seed therapy for another year at the Lucerne hospital and later filled in when there was a vacancy in La Chaux-de-Fonds. Collaborations with Varian and the Federal Office of Public Health kept him busy as well when he wasn't enjoying his new home and surroundings in the Valais. His return to Lucerne for this year's annual meeting was not meant to be, as his life was cut short by complications after a fall at night.

Beat had very much shaped this department as he was a constant fixture while experiencing two changes of medical head of department during his time in Lucerne. This department thrives on the foundation that he had laid. The physics team grew from a one-man show to a team of three for much of the 90s and has doubled in size since then. At a very busy time in his career and for this department, Beat gave a young ETH graduate the chance of her lifetime instead of hiring someone with experience. She will be forever grateful, not only for this opportunity, but also the faith and trust that were put in her during the 10 years they'd worked together. It's an honor to be Beat's successor, and hopefully his leadership style, which undoubtedly was a big influence, will carry on in the Lucerne department for a few more years to come.

Regina Seiler, Lucerne

## Medical Physics abroad: Karla Torzsok

In the spirit of this summer time, we would like to travel in some exotic areas, and so for this first interview, we set off for South America, towards Chile. Let's meet Karla Torzsok, medical physicist who oversaw developing the radiotherapy department at the Arturo López Pérez Foundation in Santiago between 2013-2023.

*Marie Fargier-Voiron: Thank you very much Karla for having accepted this informal conversation. I have a few questions prepared, but we can drift freely as the conversation progresses. What strikes me when I talk to colleagues, and what I find very enriching in our professional environment, is the diversity of our backgrounds. Relatively few of us have had a linear university education. For your part, how did you discover the world of medical physics, and how was your journey?*

Klara Torzsok: I went to engineering school, but I wanted to do applied physics. There were two fields that interested me: archaeology and medicine. I noticed that there was a linear accelerator at the Louvre, a CT scanner and an MRI, and it would have fascinated me to work in that area. Archaeology didn't work out, medicine did.

*MFV: I didn't even know the Louvre had such equipment, including an accelerator!*

KT: Indeed, mummies and paintings are analyzed from every angle, scanned and irradiated. The accelerator is used to stabilize them and prevent bacteriological growth. Fascinating but highly confidential, in the end, medical physics is a more open and accessible environment, and that's what makes sense today.

*MFV: So, you did your training in France?*

KT: Yes, and at that time, Toulouse was the only school offering training in medical physics. It was a primer to open my horizons. I realized that I also had to learn to understand and motivate multidisciplinary teams and manage operations. We're not very well prepared to face this hospital world if we stick to only Physics.

*MFV: You did it! You're a new medical physicist. Then, first experience in a radiotherapy department?*

KT: Yes, I did commission a Linac and TPS almost on my own (how crazy) in the north of France, but I quickly felt the need to move. I went to Sweden in 1998 to work in the Medtech industry, I found the software, design and product management of TPS and OIS very interesting. I went to Uppsala to work for Helax AB, a company that was a spin-off of Uppsala and Stockholm universities works. Their PhDs there were all on the job, which meant that developments were highly applied and directly linked to clinical routine. This made it possible to link unresolved clinical problems to translational research. In the space of a few years, I traveled to a hundred or so countries to work on installations, training, and service. The company was eventually bought out by two other, first in Ottawa and then in Holland, and this TPS was finally shut down.

*MFV: So here, new start?*

KT: Yes, I had the good fortune to meet the founders of IMPAC Medical systems, which is Mosaiq today, and I was hired in Silicon Valley. Now I realize that it was fabulous, but at the time I was more in the mood, ok why not! They were looking for someone who could



have an international vision, who could travel, and act as 360-degree expert on the products. We had to convey the needs of the market and translate them into an engineer's language. There were about twenty of us, at a time when the industry was willing to hire physicists. Today, it seems we're costing too much!

*MFV: And here we have our first culture shock! From the Swedish world to the American mentality. Any contrasts?*

*KT: Americans are pragmatic people. No problems, only solutions. Forward-thinking. It's a change from the Swedish world, where problems are approached differently, the search for consensus and taking time are key, it is a totally different set of societal values.*

The French market was and still is the most extensive and important one for any company in RT. After a year and a half, we did a great job in interfacing with billing and specific local regulations requirements. It was a great sales and business development experience that enabled me to get to the bottom of all the management issues, be it personnel, resources, financial and cost optimization. It really made me feel that confining the physicist to the QA tasks alone could be quite reductive. As a physicist, when you set up a project, you must make sure it holds up. You can't just ask for investment and staff to only comply with standards or legislation, without having a clear rationale in terms of viability, sustainability, and benefits for all the stakeholders.

And then In 2006, I went back in a more traditional lifestyle for personal reasons. Difficult to travel every week around the world with a young boy! I then accepted a job offer in the Paris area.



*Karla and family, in front of the MIT*



*Santiago de Chile*

*MFV: So, here we have our second culture shock?*

KT: Yes, indeed! I was now working in a radiotherapy department mainly dedicated to the head and neck cancers. There were still at colored cardboards for patient and machines agendas. Useless to mention how treatments took months waiting to start, with little workflow logics to follow, and not at all transparent in terms of who does what or when. After working in the United States, in a hyper-technological world, it was hard!

I suggested and implemented a paperless management system. It was the first digital transformation back in 2006 in France. A humbling experience about the perils of change management, understanding teams'

motivations, local culture and organizational psychology. The number of patients increased by 40% in around a month and obviously all the teams quickly reaped the benefits of the "dreaded" change.

At this time, I had my second child, and my husband had a job offer in Spain. The hospital management proposed me to work 3 days per week onsite. I did embark on an unusual weekly commuter life: work in Paris and live in Madrid. Back in 2008, it was not usual in Europe, yet it didn't scare me, I recall having IMPAC colleagues who worked in LA or the SF Bay area and lived in Hawaii. Up to 2013, I lived in Madrid with a mix of home office and travel to Paris, thanks to the digitalization of the service.



*MFV: This is what we finally managed to put in place, although at an accelerated pace with the Covid crisis. Aren't you starting to get a little bored? It's been a long time without too many trips here and there.*

KT: In fact, since 1999, I am very active with the IAEA and travel often to Africa and South America for training courses. There, I'm always confronted with the question of why some countries are highly developed in so many areas, while radiotherapy remains at 1980 standards. At one of my 2011 courses in Chile, a course dedicated to IMRT and SBRT, the directors of a center asked me what I thought about renewing their two Cobalt machines. I started laughing out loud!

*MFV: There was such a gap, you must have been surprised!*

KT: I was more than surprised. I guess I was angry. It was unbelievable, when you walk down the streets, Santiago is a beautiful and well managed city, with quaint neighborhoods, where you'd feel in Europe or in the US. There are the same cars as in Switzerland, same banks. And when you arrive in a RT service, you think you changed country. It meant there was no proper distribution of wealth, no overall vision for a healthcare system.

I became a consultant for the Arturo López Pérez Foundation (FALP) in 2011 in charge of developing a strategic plan for their radiotherapy department. We took on trainees in Paris, where I still worked. By 2013, the project was well advanced, but too big and too risky for me to manage remotely. We were about to install Cyberknife, Tomotherapy, VMAT, HDR, go paperless with Mosaic. It was time to move to Chile.

*MFV: You're all moving together there?*

KT: First, I'm leaving with my third son, who was 6 months old. Having made a few return trips since 2011 and with previous expatriation experiences, I knew that for practical reasons I needed to concentrate my life within a 1km radius around the French Lycée. So, the installation is not too difficult. And then I begin to be full involved in the project. It was a real pleasure to work in Chile, as we had "carte blanche" in terms of project management. This is the phase of working with the architects and the regulators, calculating radiation shielding and crafting SOP and new regulations. After a few months, I also take on the financial management of the project.

*MFV: So you need to have a good knowledge of the country's system. In Chile, is there a reimbursement system? health insurance or is it all private?*

KT: Yes, there is a system, but reimbursements for radiotherapy were minimal. Therefore, it was a vicious circle: radiotherapy wasn't profitable, and no one was investing to develop the range of treatments on offer, we had to have a systemic approach to develop the ecosystem for all sectors, public, non-profit and private.

*MFV: It was necessary to demonstrate that these investments in cancer care were not an impossible financial burden for a country like Chile?*

KT: Of course. Chile is a developed country according to the OECD. It has the highest GDP per capita in South America.

*MFV: But in 2013, in your center, you had 2 cobalt machines. How many machines were installed at that time in the whole country? And today, has the situation changed?*

KT: There were about ten machines, almost all of them second-hand. That changed over the years, as we managed to triple the reimbursement. At present, there are around 35 machines in the country, most of them state of the art new Halcyon. We were able to positively impact the standard of care and give better access to radiation therapy.

What we do not necessarily realize is that we couldn't tackle just one facet of the problem. It wasn't a question of installing one technique, but of ensuring that the whole project was viable.

For example, we're all used to having a Field Service Engineer with spare parts on site within an hour in case of machine failure. We don't think about export, dispatch, or organization.

*MFV: And in Switzerland we complain if we don't get an answer after 1 hour!*

KT: Yes, that's right! but in our case, we had to start from scratch. No hotline, no ticketing system. We could go 6-7 hours without an answer. No point in installing the best technology if the slightest problem brings everything to a stop. We had to be the ecosystem catalyzer and acted to find from companies to import parts and pass customs to help them set-up hotlines, trained engineers, and so on.

*MFV: Another aspect is the training. How did you go about setting up a team then? I assume there was no dedicated*

*training there at the time?*

KT: No, none in physics. We had to use our contacts to convince colleagues from Italy, Brazil, Venezuela and France to join us. Our team was huge for local standards (8 Full time Physicists) and very cosmopolitan! Regarding the therapists, there was already a good training program, similar to the one in UK, a 5-year curriculum. They are well trained for their job and for the treatment planning part. In 2017, we set-up an alliance with the IAEA with which we started a Master program aimed at training Physicians on state of the art technology:

[www.lanentweb.org/en/master-radiotherapy-chile](http://www.lanentweb.org/en/master-radiotherapy-chile)

Presently a Medical Physics branch is under construction.

*MFV: The service is now running. What are your plans for the future?*

KT: Well, the big gap now in Latin American countries is prior to radiotherapy treatment.

*MFV: Indeed! How can we diagnose cancer if we do not have access to imaging or proper pathology services?*

KT: That's my project now. Finishing my MBA at the MIT Sloan School of Management in 2022 opened my eyes to system thinking. How can you only improve radiation therapy if the rest of the cancer care continuum isn't totally addressed. I want to apply what I've learned at MIT and link Radiation therapy with Radiology and Nuclear Medicine through Theranostics, for that next step will be again Silicon Valley.

MFV: *Thank you very much, Karla, for this trip to America, both North and South America after all! It must have been quite a task to get the whole family to follow you on your travels?*

KT: We're a team! We've never imposed any limits on each other as a dual career couple, but we have always taken care to set up the organization we need to make things livable. If I can pass on one piece of advice to young people, and especially to young women just starting out: don't think you can do it all on your own. Create your support system, surround yourself with people, and ask for help. When your children and partner feel that the project is close to your heart, then it becomes a team project.

*And that ends our discussion. I hope you enjoyed reading this article as much as I enjoyed chatting with Karla ([ck@cyclop.cl](mailto:ck@cyclop.cl) for any contact). You can find the link to the foundation in Santiago here:*

<https://www.institutoncologicofalp.cl/>

*We will go back in Switzerland for the next edition, but some other horizons are already in mind. So see you soon for another trip!*

Marie Fargier-Voiron

“Welcome!”

## Jonas Ekeberg

I was born and raised in Sweden in a region not far from Stockholm. My first encounter with the human nature in a working environment was during my youth, where I spent numerous ever-lasting Nordic summer days working as a gardener in various cemeteries. This provided me with ample time to get curious about life and the universe. As a result, I was attracted to astronomy and ended up studying mathematics and physics at the University of Uppsala. During my PhD in Kiruna in Northern Sweden, I specialized in plasma physics of the Earth's ionosphere and magnetosphere, both home to processes of *aurora borealis* (northern lights).

North of the Arctic circle lies a rather sparsely populated region, no matter which longitude one picks, and the small mining town Kiruna is not an exception, its essence well-reflected by the saying “close to nature, far from the rest”. Speaking of the rest, I met my Swiss partner in Grenoble during a winter school and after finishing my PhD, we moved to Switzerland, where we now live with our 8-year old daughter.



The first 6 years in Switzerland I worked at the ABB Research Centre in Dättwil on discharge physics and who knows, maybe the years at the cemeteries then made me long for a somewhat more humane form of physics? In 2016, I decided to embark on a career change and to explore the field of medical physics by enrolling in the MAS program in Medical Physics at ETH Zürich. After graduating, I started to work at the University Hospital of Zürich, where I am now dividing my time between two positions, one in the Radiation Protection Group and one in the Clinic for Nuclear Medicine. Last, year I was happy to pass the SSRPM exam and to be doing so in the company of several good colleagues.

The hospital world is quite different from what I knew before tuning into this career path, and my working days are still full of novelty and pleasant surprises. I especially value the vast range of roles, professions and personalities that the job allows me to get in contact and work with.

I am very grateful to have been given the chance of this leap in my career and on a personal note, I realize that I ended up doing something that lies in between my early years of work with my fingers in the soil and my later research on the outer space. I am looking forward to getting to know you all and wish you a nice continuance of the summer!

Jonas Ekeberg,  
University Hospital Zürich

“Welcome!”

## Jenny Bertholet

I grew up in the beautiful region of the Pays d'en-Haut, almost directly on the ski slopes and moved to Lausanne for a Bachelor in Physics at EPFL. During my exchange year in Santiago de Compostela I discovered medical physics and decided it was going to be my path.

Back at EPFL for the Master, I did some semester projects at the CHUV in nuclear medicine and radiation oncology and completed my master thesis at Varian Medical Systems' imaging lab in Baden. As a freshly minted “Ing. Phys. Dipl. EPF.” graduate I still wanted to see more of the world and found a PhD position in Aarhus, Denmark.

My project was on image-based motion monitoring for liver SBRT supervised by Prof. Per Poulsen and Prof. Morten Høyer, including a collaboration with Prof. Parag Parikh at Washington University in Saint-Louis where I visited for 7 weeks. We developed a method for real-time motion monitoring on conventional linacs called COSMIK. It combines respiratory monitoring using an optical marker block (Varian's RPM) with monoscopic kV imaging every 3 seconds to detect implanted fiducial markers (essentially like the synchrony system on CyberKnife, but with only one kV imager). One major highlight of my PhD was when we were able to use COSMIK in real-time during the treatment of a patient.

After my PhD I went to London for a postdoc with Prof. Uwe Oelfke and Dr. Jamie McClelland. We worked on deformable motion reconstruction and motion models for lung cancer treatments on the newly installed MR-linac.

In 2020, I came back to Switzerland to the Abteilung für Medizinische Strahlenphysik with Prof. Peter Manser and Prof. Michael Fix to work on dynamic trajectory radiotherapy (DTRT) and become a candidate to the SSRMP certification. I just got to meet my colleagues in person for a couple of weeks before being sent home due to COVID and my partner came back from the UK with one of the last regular flights, having packed our flat in a record time!

Since then, I participated in many cool projects on DTRT and combined electron-photon techniques, helped commission our new linacs and learned more about clinical medical physics and radiation protection in Switzerland. In 2022, my partner's family visited from Bolivia for our wedding which took place between the written and oral exam of the SSRMP certification. This made for a crazy couple of months filled with many good memories!



Jenny Bertholet  
Inselspital, Bern



“Welcome!”

## Davide Cester

I was born in Venice, Italy, in a not-so-distant time when the city still had a complicated yet thriving mix of culture, tourism and industrialization. And water, of course: affecting life in a variety of different aspects, threatening the city itself while at the same time giving a romantic touch to most everyday activities...

One of the small thing that I miss, now that I live abroad, is the smell of the salty water carried by the morning breeze while waiting for my commuter train. I consider myself lucky to live in Zürich, with its beautiful lake and the cruise ships integrated in the city public transport!

And what brought me here? Well, one could say it all started with toys...

When the time came to choose which University degree to pursue, of course I had an idea but for some reason I couldn't convince myself to commit to that particular path. My English teacher came to the rescue, asking me what I liked to do when I was a child. Without hesitation I replied that I had always opened up my toys to see how they worked. "Well, in this case you must absolutely enroll to study Physics!", she declared. In my mind Physics was already my favourite choice, and after this firm encouragement the course was finally set.

The path has indeed been long, and rarely an easy one; but deep inside I always loved it, and explored different directions until I found myself doing a PhD in Radiation Physics. Thanks to an EU funded project my research group partnered with a Swiss startup to develop a mobile radiation detection system (which I like to imagine still hitting the road somewhere in Europe); later I joined that company to work as Physicist / Software engineer.

At that moment I was sure that my studying days were over and that I had joined industry for good, however a few years later came another career twist, when I applied for my current position at the University Hospital Zurich and soon after I enrolled in the ETH MAS in Medical Physics, aiming for the SSRMP certification.

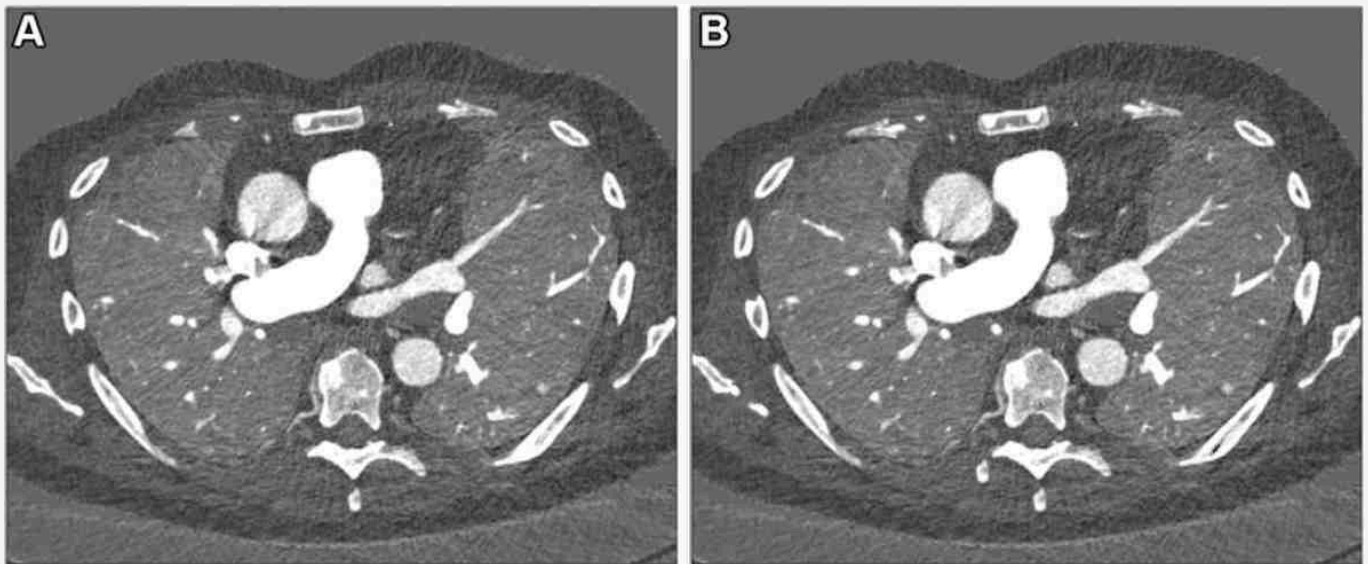
Now I am a Medical Physicist at the Institute for Diagnostic and Interventional Radiology at USZ, where I am responsible for Radiation Protection and I also do research in the imaging domain. There is a lot to do and no day is the same here, and while this is definitely challenging at times, I like it and would not go back and change anything. Just sometimes, when I really feel a bit of nostalgia, I try to jump on the closest boat, possibly with a sail on it...



Davide Cester  
University Hospital Zurich

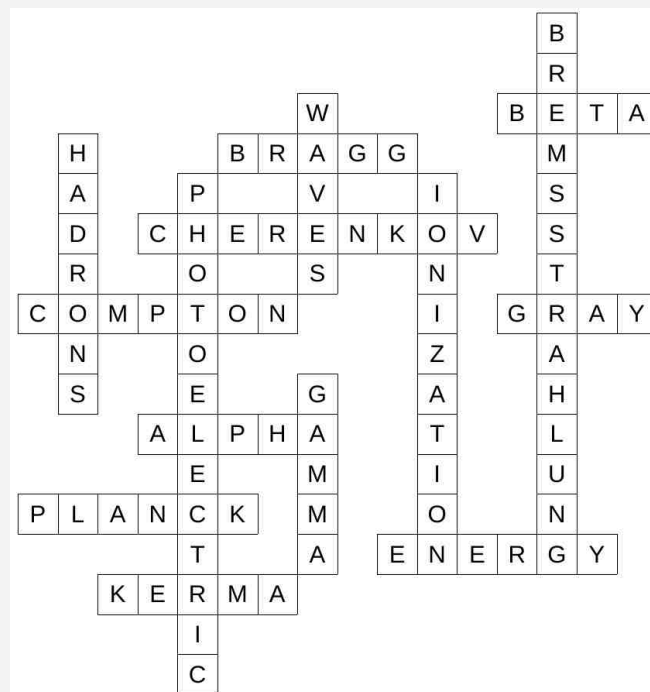
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Image B has been altered and contains 10 differences compared to image A: can you find them all?



*The solution will be published in the next issue.*

## Solutions of the Crosswords from the April issue:



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Of desirability are all contributions that could be of interest to members of our society, such as

Reports of conferences, working group meetings, seminars, etc.  
Reports on the work of various committees and commissions  
Succinct results of surveys, comparative measurements etc.  
Short portraits of individual institutions (E.g. apparatus equipment, priorities of work, etc.)  
Reports on national and international recommendations  
Short Press Releases  
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Short articles worth reading from newspapers or magazines (if possible in the original)  
Member updates (E.g. appointments, change of jobs, etc.)

The easiest way to send your document is as Word or ODT document via email to [bulletin@ssrpm.ch](mailto:bulletin@ssrpm.ch).

**Deadline for submissions to Bulletin No. 107 (December 2023): 17.11.2023**

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# Conference Calendar

August 28 Heidelberg, DE	5 <sup>th</sup> Summer School in Medical Physics 2023 (Hybrid event) Aug 28 – Sep 22 <a href="https://www.dkfz.de/en/medphys/education_and_training/">https://www.dkfz.de/en/medphys/education_and_training/</a>
August 31 Bern	27 <sup>th</sup> SASRO Annual Meeting 2023 Aug 31 – Sep 02
September 18 Mondsee, AT	54. Jahrestagung des FS Sep 18 - Sep 22 <a href="https://strahlenschutzverband.at/strahlenschutztagung">https://strahlenschutzverband.at/strahlenschutztagung</a>
September 27 Magdeburg, DE	54. Jahrestagung der DGMP Sep 27 - Sep 30
Oct 09 Heidelberg, DE	Courses in the field of Particle Therapy (Hybrid) Oct 09 - Nov 25 <a href="https://www.dkfz.de/en/medphys/education_and_training/index.html">https://www.dkfz.de/en/medphys/education_and_training/index.html</a>
Oct 27 Bern	SSRMP-SASRO Continuous Education Day 2023 Oct 27
Nov 26 Chicago, IL	RSNA Annual meeting Nov 26 - Nov 30 <a href="https://www.rsna.org/annual-meeting/future-and-past-meetings">https://www.rsna.org/annual-meeting/future-and-past-meetings</a>
Nov 30 Lucerne	56 <sup>th</sup> SSRMP Annual Meeting Nov 30 - Dec 01 <a href="https://indico.psi.ch/event/14191/">https://indico.psi.ch/event/14191/</a>
Mar 10, 2024 Pichl, DE	Winterschule Pichl für Medizinische Physik Mar 10 - Mar 22 <a href="https://www.winterschule-pichl.de/">https://www.winterschule-pichl.de/</a>
Sep 11, 2024 Munich, DE	5 <sup>th</sup> ECMP - Joint Conference of the DGMP, ÖGMP & SGSMP Sep 11 - Sep 14 <a href="https://ecmp2024.org/">https://ecmp2024.org/</a>



And please, if you participate in any conference or meeting, think of writing a few lines or sending a picture for the Bulletin.

THANK YOU!