

BULLETIN

January 2025



BULLETIN 110

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Cover image:

Irène Cahen d'Anvers (La petite Irène) 1880
oil on canvas, Auguste Renoir (1841-1919)
(Zurich CH, Foundation E.G. Bührle)

Letter from the Editors



Dear colleagues,

A new year has begun! We hope you had a wonderful holiday season, and that you're back in good health and full of good vibes.

A quick look in the rear-view mirror as we leave 2024 behind us: a particularly busy last quarter for everyone, filled with projects to finalize before the Christmas break, a breath-taking succession of conferences, and the ever-present clinical routine. As for the Bulletin, it was our first year with this new publication schedule, which is better suited to our professional and personal lives, and which we'll be keeping for 2025 as well.

As per tradition, the January issue is the opportunity to publish the reports of the various SSRPM boards. The Annual General Meeting was held at the end of November, on the occasion of the Continuing Education Day in Lausanne. A day doubly rich in information and exchanges, a summary of which you can read in this issue (page 17).

We had the chance during this day to attend the nomination of Hans Neuenschwander as Honorary SSRMP member as recognition of his career. He presented us a summary of his professional career with a lot of very interesting historical insights (page 21).

November is also the month of the SSRMP Certification Exam, which this year was passed by 13 colleagues (page 16): congratulations!

The second AMP meeting took place in mid-December, with an interesting brainstorming session to make sure we don't run out of projects in 2025 ;-)!

We wish you all the best for the new year. May this year be full of professional success and personal and family happiness!

Marie and Davide

PRESIDENT'S LETTER



Dear colleagues,

I hope you enjoyed the Christmas break, and you are back with plenty of energy for your various projects!

For those unable to attend our recent meetings – General Assembly (GA) in November and AMP in December – let me quickly recap the highlights since our last bulletin.

Our last continuous education day took place in November at CHUV. Organized by Anaïs Viry and Damien Racine, the event focused on “*From single-energy CT to multi-energy CT: Challenges in medical imaging and radiotherapy*”. The presentations were well structured and covered a wide range of topics – from the basic principles of CT imaging to spectral CT and its clinical applications. Feedback from participants and sponsors alike was very positive. The day also included our GA. Here is some news of what happened. As usual, we heard the reports from myself, as President, and of the chairs of our three permanent committees. This year’s elections included roles for President, Committee Chairs, and new board members as well as for new SSRMP members. After having taken care of those mandatory topics, we were inspired by a wonderful talk from our new honorary member Hans Neuenschwander.

I would like to take this opportunity to sincerely thank you for your trust in my role as President, and rest assured I will continue to work thoroughly for our society’s interests. Congratulations to the newly elected board members: Silvan Müller, Siria Medici and Francesca Belosi – we are excited to have you on board! A big thank you to those stepping down: Michael Fix, Stefano Gianolini and Roman Menz – your dedication and contributions to the society have been invaluable, and you will be missed. Congratulations to Thiago Lima who was elected as new chair of the Education committee and to Maud Jaccard and Yvonne Käser who were re-elected as chairs of the Scientific and Professional affairs committee respectively.

Since our last September bulletin the ECMP24, the 5th European Congress of Medical Physics and Joint Conference of the DGMP, ÖGMP & SGSMP, took place from the 11th till the 14th of September in Munich. It was a very successful congress with high-quality presentations and strong participation. Talking about congress, the next SCR’25 will be held in St. Gallen. However, it is disappointing to learn that the number of abstracts submitted by the SSRMP members was very low. Despite our efforts to establish a presence, the opportunity was underutilized. I hope that at least we will see each other there and of course I hope for stronger engagement for SCR’26.

PRESIDENT'S LETTER

On a brighter note, I'm pleased to announce the venue and dates for our next SSRMP annual congress. Good news! Please take note that the congress will take place on the 29th and 30th of October 2025 in Geneva, more specifically at CERN. This congress will be a unique collaboration where research in particle physics meets clinical applications. You will receive more information later but save the date – you won't want to miss it!

The AMP meeting in middle of December was particularly special and fruitful. We heard the presentation from the 2022 research grant winner, and the newly created Early Careers (EC) group. You will get more information soon but let me explain you why it was decided to create this group. Clearly the young members of our society will be the people who will steer the society tomorrow. We hope that they can bring fresh and genuine views and furthermore it's a way of reuniting our early members and address their concerns by a centralised, dynamic and internal structure. No more details, I will let Siria Medici, the elected chair of this EC group communicate with you via a Newsletter all their views and activities. I would like to express my best wishes to this new group that it's very much supported by the board members.

But this AMP was also special because of the excellent participation – thank you all for being there! Besides, some of the working group chairs presented updates on their ongoing projects. There has been progress and people have shown their interest on the work performed. During a productive brainstorming session, we discussed the importance of addressing “hot topics” in medical physics (hyperthermia, AI, quality control in spectral CT, ...) *within* our society, which is our

responsibility as professionals in the field. We should be the driving force on defining medical physicist professional roles. I encourage everyone to take or support the initiatives by joining and contributing. We count on you!



Before I finish, let me just bring a last point. As every year, a board delegation met with the Federal Office of Public Health (FOPH) in early December. It was a very productive discussion, emphasizing the importance of this annual dialogue. Topics such as the news from our society (new board members, earlier careers (EC) group, new WGs,...) and the training and continuous education of medical physicists were addressed. They also gave us a detail description of their next projects in nuclear medicine, radiology and radiation oncology and the status of those already started projects (DRLs in interventional cardiology, the actual and future use of RPS,...).

Well, I think that is enough for me, I let you discover the rest of the bulletin. I look forward to seeing you soon – whether at meetings, congresses, or in one of our many ongoing or upcoming projects. Your engagement is vital, and I'm excited to collaborate with you in the year ahead. Wishing you all a great start to the new year!

Marta Sans Merce
SSRMP President

Professional Affairs Committee Annual Report



While the first year as chair of the professional affairs committee was spent learning all the important things, this second year has now seen already some routine. Still a lot of our time is used by maintaining the digital platforms.

As our webmasters, Anisoara Socoliuc Toquant and Lotte Wilke do not only keep our webpage up to date but also regularly prepare Newsletters and Biweeklys to keep our members informed about events, news and job offers. 12 Newsletters and 15 Biweekly information emails were sent out since our last annual assembly. If you have any interesting information that you think needs to be shared with our community let us know by sending an email to webmaster@ssrmp.ch.

Besides the webpage, the Bulletin is certainly an important means of communication for our members. Our editorial team of Davide Cester and Marie Fargier-Voiron managed to produce three issues full of information with many reports from events, interesting interviews with medical physicists, inputs for new reading

material and the much loved riddle section. Please do contact our editors via bulletin@ssrmp.ch if you would like to write a report on a congress you visited or if you have any other input you would like to see published for all our members.

Talking of members, another long-lasting and very important project has come to a happy ending. For quite some time Sivakaran Kanesan has been working on implementing a new member database that replaces all the different lists and Excel-files that have been kept by many board members. The development was led by Michael Fix who coordinated the inputs and requirements of the various interest groups like treasurer, education, mailing lists and much more. In early 2024 the database was ready for use and luckily Davide Cester, who took over from Stefano Gianolini the task of managing our digital platforms, does not only know a lot about physics but also about databases and was able to implement it on our digital platforms. So now we have one common database that covers all our needs.

The common database not only solves many updating problems but also helps in a completely different way. With the new regulations on data protection, we have to be careful on the information our society collects and keeps. In an ongoing effort we try to clean our collected data to be compliant with legal requirements.

This also concerns another project from the last two years. Over time, many people have acquired quite extensive paper archives with communication and information concerning our society. These papers were digitized and are now been looked through to make sure we only keep useful information. I can tell you that I already found quite a lot of interesting and also amusing things – maybe if I find the time, you will read some of our societies memoirs in the Bulletin.

The salary survey for medical physicists is already a long standing tradition. While the last survey was run during October 2023, the final results were published in January 2024. You could read a summary in the Bulletin, the full report is available to our members only in the intranet:

<https://ssrpm.ch/intranet/download-files/>

The questionnaire was changed a bit from the previous surveys, but the main aspects remained the same. The report gives us not only insight into the salary situation but also into the working conditions.

I here only summarize the main results:

- mean salary, regardless on education and position is just below CHF 150'000 for a typical workrate of 40 – 42.5 hours per week
- we see a steady increase in mean salary since the last two surveys
- mean salary increases slightly with a higher academic education (MSc vs. PhD)
- mean salary increases clearly with the acquisition of the SSRMP certification
- mean salary increases with growing professional experience

It is nice to see, that about 2/3 of the participants are happy with their situation, but with 1/3 not being happy, there still seems to be room for improvement, maybe our report can even help in this situation. The next salary survey will run in two years, looking at the data from 2025 – so be prepared.

Another part of our profession is to keep up to date with the developments not only in Switzerland but also abroad. For this it is important to keep in contact with other national and international professional societies. Elina Samara and Sara Alonso are our delegates in the European Federation of Organisations for Medical Physics (EFOMP).

Now I look forward to the next year and new challenges in our professional field!

On behalf of the committee for professional affairs,

Yvonne Käser,
November 22nd, 2024

Science Committee Annual Report



Dear colleagues,

It has been a productive year for the SSRMP Scientific Committee. The committee members – Mania Aspridakis, Thomas Buchsbaum, Margherita Casiraghi, Sarah Ghandour, Peter Manser, Raphaël Moeckli, Stephanie Tanadini-Lang, Anaïs Viry, chaired by Maud Jaccard – have been working to support our society and advance SSRMP scientific activities.

The SSRMP working groups have been making progress toward achieving their goals. We currently have **nine active working groups**, and here are some highlights of their contributions.

The working groups *Stereotactic Radiation Therapy* (chaired by Andreas Mack) and *Radiation Protection Ordinance in Medical Physics Practice* (chaired by Peter Manser) have

provided valuable contributions to SSRMP. The former has published Recommendation 18 on the QA of systems for stereotactic ablative radiation therapy, while the latter has developed recommendations for creating quality handbooks in the context of clinical audits. Both groups will continue to provide education and support to SSRMP members.

The *Quality Control of Treatment Planning Systems* WG chaired by David Patin, is revising Recommendation 7 to ensure it reflects current standards and practices.

Two working groups on the role of medical physicists are working to provide recommendations on the tasks of medical physicists in imaging and harmonizing medical physics practices across Swiss centers. One group, chaired by Thiago Lima, focuses on Nuclear Medicine, while the other, chaired by Damien Racine, addresses X-ray imaging.

Two working groups are addressing patient dose in X-ray imaging. The *Cumulative Dose in*

X-Ray Imaging WG, chaired by Elina Samara, is preparing a document with indications for the correct use of cumulative dose metrics. The *Fluoroscopy* WG, led by Marie Nowak, is working on the classification of fluoroscopy procedures based on effective dose ranges and defining national DRLs for such procedures.

The *MR-Only Radiotherapy* WG, led by Lisa Milan, has conducted a survey on the use of MR in radiotherapy within Switzerland. Based on the survey findings, the group is expanding its focus and preparing a report with recommendations for the use of MR in radiotherapy. Additionally, they aim to provide practical advice and reference to centers interested in implementing an MR-only workflow.

Lastly, a newly launched group, *Room Shielding in the kV Domain*, chaired by Natalia Saltybaeva, is developing recommendations for calculating room shielding for kV X-ray devices, including treatment units, with a focus on special cases not covered by current radiation protection legislation.

We are very grateful to all the working group members for their work and dedication. Their efforts are important for the growth of our society and the support of our members! We also encourage all the SSRMP members to contribute. If you are interested in joining a working group or have ideas or suggestions, please do not hesitate to contact the respective chairs.

A great opportunity to connect with the working groups is the **Applied Medical Physics (AMP) meeting**, held twice a year (usually in June and December). This free event is open to everyone interested in medical physics. Here the working groups present their progress, share challenges, and discuss key issues. The programme also includes the President report, which is useful for many insights into all the SSRMP activities and initiatives.

At the June AMP, we had the pleasure of hosting Marie Catherine Vozenin as an invited speaker. She gave a talk on FLASH radiotherapy, providing valuable insights into this cutting-edge topic.

At the December meeting we had a special program focused on the development of the SSRMP society. Two invited speakers enriched the meeting: Philipp Wallimann presented his work, "Exploring the reliability of quantitative MRI on an MR-Linac and a clinical scanner," made possible through the SSRMP Research Grant he received in 2022. Siria Medici introduced the new SSRMP Early Career Group, aimed at supporting and fostering early-career members.

A key part of the meeting was a brainstorming session aimed at exploring ideas and proposals for the creation of new WGs in emerging or high-priority areas of medical physics. Among the identified topics, **Artificial Intelligence** was a primary focus. Michele Zeverino presented a

proposal for a new WG dedicated to AI in medical physics, which he will co-chair with Davide Cester. This WG will address topics spanning both radiation therapy and imaging. Other topics discussed included **FLASH radiotherapy**, **QA for Multi-Energy CT**, and **Hyperthermia**. The formation of new working groups to address these important areas is now underway.

We thank all the participants for their active engagement in the session and encourage all members to contribute to these new working groups. Do not hesitate to communicate your interest by reaching out to the Scientific Committee at chair.science@ssrmp.ch.

Additionally, we invite you to share your ideas and suggestions for other potential topics or express your interest in initiating and leading new working groups! **Please save the date for the next AMP meeting: May 23, 2025.**

As in previous years, the Institute of Radiation

Physics in Lausanne was mandated by SSRMP to organize the annual dosimetry intercomparison for gantry-driven linacs. This year, 32 institutions participated, with a total of 149 beams checked, including 120 photon beams (both FF and FFF) and 29 electron beams. The results, which were globally positive, are detailed in the September 2024 Bulletin. A special acknowledgment also goes to Thierry Buchillier and Claude Bailat for their work on the TLD intercomparison.

Once again, I extend a big thank you to the members of the Scientific Committee, as well as the chairs and members of the Working Groups for their contributions.

On behalf of the Scientific Committee,

Margherita Casiraghi

SSRMP Research Grant 2025

In order to support and promote the scientific activities of our members in Switzerland active in all fields of Medical Physics, a research grant is provided by SSRMP. As in the last years, a financial grant of maximum **7'000 CHF** is offered for research projects fulfilling proper eligibility criteria.

The projects should:

- be submitted by one regular member of SSRMP
- be conducted entirely in Switzerland in one of the private or public institutes active in the field
- preference will be given to projects involving more than one institute aiming to a trans-linguistic and trans-cultural cooperative model
- be strictly linked to a field of interest of SSRMP
- be completed within the time span of one year from grant assignment

The group that will be awarded with the grant will have to provide the SSRMP Science Committee with a detailed report (inclusive of costs justification) at the end of the one-year period and will guarantee the publication of a scientific report in the SSRMP Bulletin. The scientific report should be, pending scientific committee's review and approval, submitted for oral contribution to the annual SSRMP meeting.

Deadline for submission of proposals is June 30th 2025.

Proposals should not exceed four A4 pages and should contain:

- project title, duration and financial request for material (hardware, software, etc.)
- principal investigator's and co-investigator's names and responsibilities in the project
- short description of the scientific background
- short but detailed description of the project
- short description about current state of the art in the field

Proposals should be submitted via email to the chair of the SSRMP Science Committee:

Maud Jaccard

chair.science@ssrmp.ch

Varian Recognition Awards 2024

This year, three Varian Recognition Awards were presented during the General Assembly to Hannes A. Loebner, Frédéric A. Miéville, and Andreas Smolders, along with their co-authors. Details of the awarded works, as well as information about the application process, can be found on the SSRMP website.



We congratulate the winners and thank them for the important work! In addition, we thank Varian Medical Systems for their support.

Maud Jaccard
 Swiss Medical Network, Genolier and Geneva
 President of the Varian Prize Committee

Varian Award for Radiation Oncology of SSRMP 2025

Deadline for submission: March 31st 2025

Award rules:

1. SSRMP can award during the annual general assembly up to three Varian prizes. The maximum amount for a single Varian prize is SFr. 3'000.-. Varian Medical System Inc. donate to SSRMP each year SFr. 3'000.- for the Varian prize.
2. The prizes are given to single persons or to groups, which have made an excellent work in radiobiology or in medical physics. Only members of SSRMP or groups whose main applicant is a member of SSRMP are legitimate to apply with a manuscript or with a published or unpublished paper of special importance, special originality or special quality. The size of the work should not exceed the normal size of a paper. A thesis normally exceeds this size. The person, who enters a paper written by more than one author, should have contributed the major part to this paper. The consent of the co-authors must be documented.
3. Previous awardees are excluded from applying in another year.
4. The winner gets the prize amount, as well as a diploma with an appreciation.
5. The invitation for the Varian prize is published in the bulletin of SSRMP. Direct applications or recommendations of other persons can be sent to the President of SSRMP. The documents should be entered in four specimens not later than six months before the annual meeting.
6. A prize committee judges the entered works. It consists at least of three members of SSRMP and is elected or reelected for 2 years by the SSRMP board. At least one member of the prize committee should be member of the SSRMP board.
7. The prize committee constitutes itself. The decision of award together with the appreciation should be sent to the board for approval.
8. Varian Medical Systems Inc. is indebted to announce in written form each change of the prize amount or a termination of the contract to the president of SSRMP at least one year in advance.
9. This regulation was accepted by Varian Medical Systems Inc. (Switzerland) November 1st, 2023 and renewed by the annual assembly of SSRMP November 30th, 2023. It can be changed only with the approval of Varian Medical Systems by a decision of the annual assembly of SSRMP.

Note that there will be an award ceremony during the general assembly in 2025 and a publication of the Varian prize recipients is then taking place in the SSRMP bulletin and on the SSRMP website.

Maud Jaccard,
Swiss Medical Network, Genolier and Geneva
President of the Varian Prize Committee

Event announcements



Olma Messen
Splügenstrasse 12
CH-9008 St. Gallen

Website and registration

<https://congress.sgr-ssr.ch/>



ESTRO
2025

2-6 May 2025

Vienna, Austria

Messe Wien Exhibition & Congress Center
Messepl. 1, 1021
Wien, Austria

Late-breaking abstract submission: 19th March 2025

Early rate registration deadline: 22nd January 2025

Late registration deadline: 2nd April 2025

Comprehensive Quality Management in RT: Quality Assessment and Improvement

This course is designed for everyone involved in ensuring patient safety and effective treatment and it provides essential knowledge to establish and maintain robust quality systems.

ESTRO SCHOOL 2025
Check out our courses

Course venue: Athens, Greece

Course dates: 6th – 9th April, 2025

Early registration deadline: 22nd January, 2025

Redefining risk management in the increasingly complex RT environment

A four-day theoretical and practical course exploring the broader concept of risk in radiation oncology practice focussing on issues that impact on the delivery of a quality and safe service. Topics will include the ethical and clinical application of radiation protection and associated incident occurrence and management, cybersecurity and how to achieve it and an exploration of Artificial Intelligence impact on current and future practice.

Course venue and dates: Dublin, Ireland, 1st – 4th September, 2025

Contact: Prof. Mary Coffey, Tel: 00 353 868599543 - Fax: 00 353 1 8963246 - Email: mcoffey@tcd.ie

Education Committee Annual Report



In 2024, 13 candidates successfully completed the SSRMP certification exams in medical physics. We congratulate our colleagues for their success.

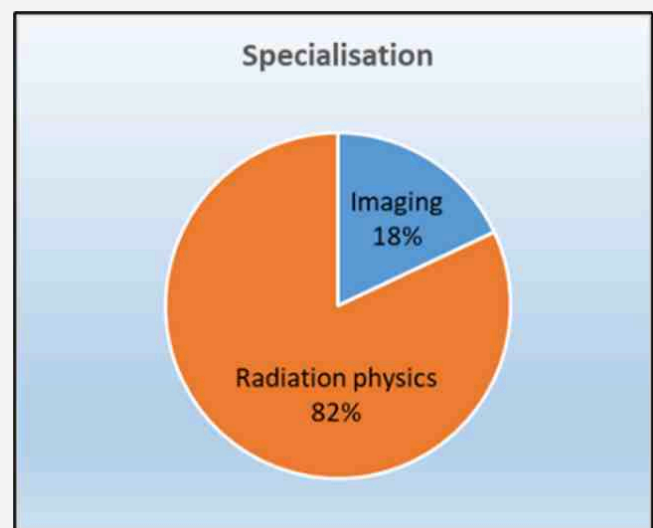
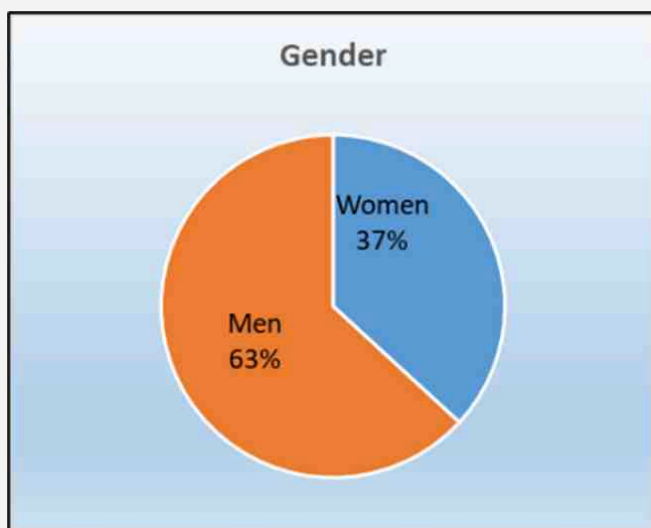
Additionally, 38 candidates are currently in the process of obtaining the SSRMP certification, with 13 new candidates having registered in 2024.

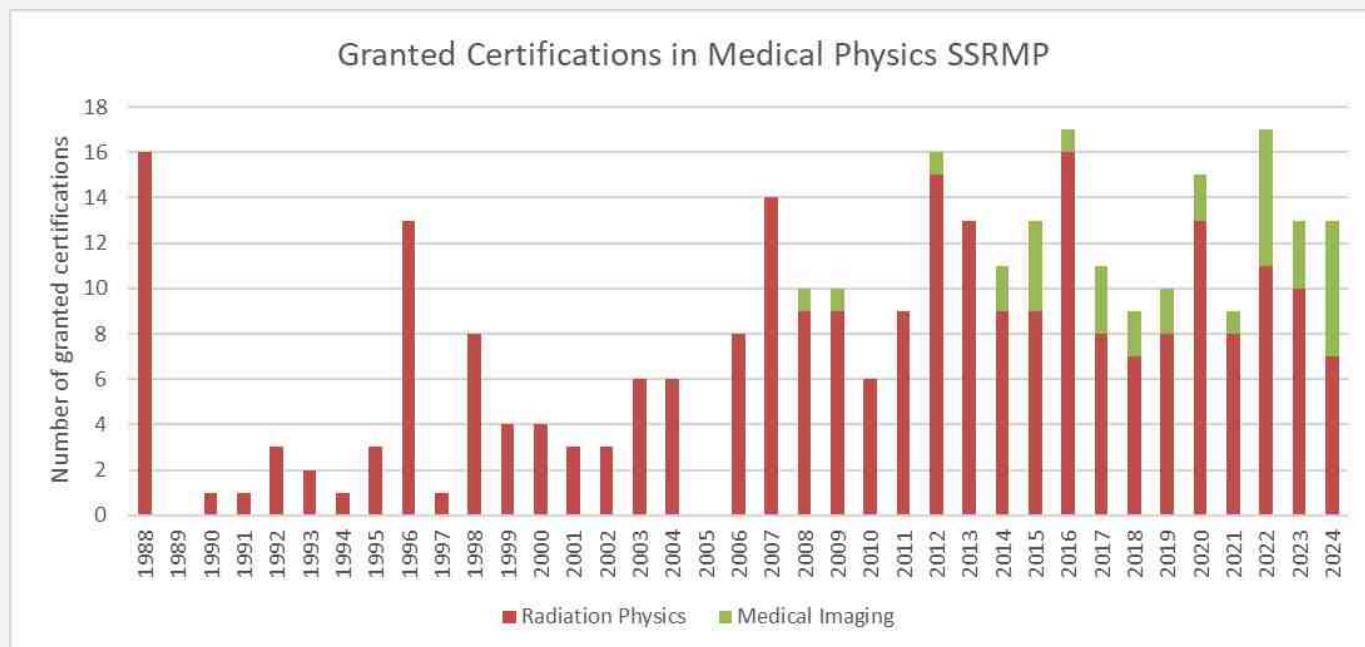
The gender distribution and areas of specialization of the candidates are illustrated in the diagrams below.

This year, three clinical education days organized by SRO and SSRMP for medical physics trainees were organized. The topics covered during these courses were:

- Urogenital Tumors
- Breast Cancer; Reirradiation
- Lung cancer; Ethical aspects in radiation oncology; CIRS

A great thank you goes to Anna-Lena Eberhardt who organised these lectures, and to all the speakers.





Two additional lectures were organized: the first focused on brachytherapy, and the second on diagnostic and intraoperative imaging. The diagnostic course, which covered topics from the third week of radiation protection, was held in Zürich. Many thanks to Natalia Saltybaeva and Eleni Samara for organizing this 3-day course.

With the 13 physicists certified in 2024, we currently have 240 medical physicists with a valid certificate. The number on “newly” certified physicists as a function of years are displayed on the graph above.

In 2024, the Education Committee developed two registration forms: one for education towards certification and another for the certification examination. These forms are available on the SSRMP website under the "Certification / Registration" section. Additionally, the Education Committee has been actively revising Annex II, *Stoffkatalogue*,

with the goal of completing the revision by early 2025.

I would like to extend my gratitude to all the members of the committee for their invaluable contributions: Maria Mania Aspridakis, Frédéric Corminboeuf, Stephan Klöck, Götz Kohler, Angelika Pfäfflin, Julien Ott, Regina Seiler, Véronique Vallet, and Valéry Zilio. A special thanks to Stephan for his outstanding work in chairing the exam committee over the past 15 years, ensuring its smooth operation and success. I also want to thank Götz, who has now taken over Stephan’s role with great dedication.

On behalf of the Education Committee, thank you all for your dedication and support.

Jérôme Krayenbühl

Results of the Certification Exams 2024 in Medical Physics (SSRMP)

In the exams for the certification in medical physics SSRMP 2024 (4.11. - 18.11.) the following 13 colleagues succeeded (6 with a certificate in medical imaging):



In alphabetical order:

Amstutz, Florian (Inselspital Bern)

Eggimann, Hannah (Kantonsspital Aarau)

Evans, Laura (CHUV, Lausanne)

Gallego Manzano, Lucia (CHUV, Lausanne)

Guyer, Gian (CHUV, Lausanne)

Halley, Amandine (Hôpital de la Tour, Geneve)

Löbner, Hannes (Inselspital Bern)

Meijers, Arturs (PSI, Villigen)

Özden, Ismail (Kantonsspital Aarau)

Pahlen, Tobias Sebastian

Ruuth, Riikka (Hirslanden)

Siewert, Dorota (PSI, Villigen)

Waschkies, Frauke Conny (Universitätsspital Zürich)

On behalf of the examination committee and the SSRMP board, I want to congratulate the candidates for their certification and the new position in the community connected to that.

Götz Kohler

Chair of the SSRMP exam committee

15.11.2024.

SSRMP Continuous Education Day and SSRMP General Assembly

Lausanne, 22nd of November 2024



From single-energy CT to multi-energy CT:
Challenges in medical imaging and radiotherapy

On November 22nd, the continuous education day on conventional and spectral CT took place at CHUV in Lausanne.

Everyone waking up in the German and Italian part of the country was welcomed by the wonder and awe that accompany the magic sight of the first snow; the magic soon disappearing at the realization of a very painful journey ahead, characterized by cancellations and delays of any public transport and with the only ones in function proceeding at walking pace.



Eventually everybody made it with more or less delay, including our small group from Winterthur Kantonsspital (KSW) and so the interesting talks of this day did not remain confined to the ears of solely a French speaking audience.

Davide Cester (Diagnostic and interventional Radiology, Universitätsspital Zürich) and Frédéric Mieville (Hôpital fribourgeois, Fribourg) opened the morning session with a very clear and effective introduction on the basic principles of single-energy CT and the challenges that arise in the radiation therapy field due to the limitations of its technology.



Of course, metal implants and artefacts are among those challenges and the use of iterative Metal Artefacts Reduction (iMAR) methods are recommended when available. With regard to metal artifacts, Frédéric also showed that the Hounsfield units (HU) of Ti and Stainless Steel inserts vary greatly depending on the insert diameter.

Another limitation is the sinking of the CT-table with time under the patient's weight. The table sag can have an impact especially on the acquisition of the patient's breathing curve. Some tests done in Fribourg monitoring the vertical coordinate of the couch during the acquisition of CTs in DIBH revealed that the sag effect occurs mostly when the patient is inside the CT gantry.

Their recommendation is therefore to set the thresholds on the parts of the curve corresponding to the table being out of the gantry.

Remaining on the topic of breathing motion, Frédéric neatly explained the difference between 4D-CT reconstruction amplitude-based and phase-based. It's clear that the two methods yield two images essentially different, hence the importance of explaining to the medical doctors about this difference so they can make educated decision on what they need. Noteworthy was the real case of a patient not fit enough to perform DIBH and who presented a lung lesion with about 6 cm excursion in cranio-caudal direction. With such moving targets and the impossibility of performing DIBH, what we look for is a very slow acquisition (slower than the patient's breathing cycle) so to obtain on the average CT a location of the target that will be as most representative as possible of its average position. As it happens, modern CT-scanner are fantastic Ferraris and even the slowest protocol is too fast for most of the patients' breathing cycles. The usage of a thorax belt did not help in this case as the lesion was very posterior and the compression did not have any impact on its movement. Indeed, the acquisition of four consecutive 3D-CTs showed the target in four completely different locations.

Take home message: be mindful when using compression belts (they mainly fixate the thorax surface) and in doubt, acquiring consecutive CTs could be an effective way of verifying the residual motion of moving targets.

The SSRMP General Assembly took place after this first session. The chairs of the various committees reported on their respective achievements throughout the past year. Marta Sans Merce was re-elected as SSRMP President and a new board composition was approved (*on page 30 we report the full list of chairs and members*).

Hans Neuenschwander was prized with the title of Honorary SSRMP Member and held a short presentation on the tricks of life that lead him to choose his profession (*see page 21 for a summary of the presentation with some historical insights on RT and MC calculations*). To say that his passion for physics and for medical physics in particular is contagious would be an under-statement; and to witness through the old pictures he provided, the incredible advances that were done in our field during the past 20-30 years was shocking.



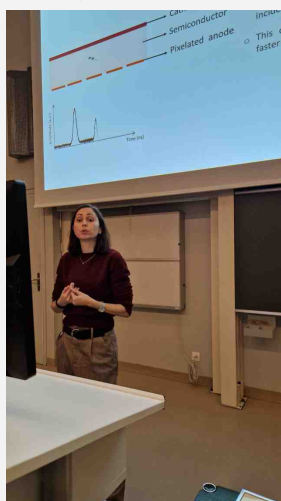
Hans Neuenschwander with Marta Sans Merce

But what about our future from now? Is this it? Is this the plateau, or can we still feel thrilled at questioning ourselves, as Hans encourages us to do, on what the future will bring? Do we dare asking: "who knows how medical physics will be in 20 years from now?"

The afternoon session moved from the *Known* of the principles of single-energy CTs to the *A little less known* of dual-energy CTs and finally landing into the *mostly Unknown* of the Photon Counting CT (PCCT) world.

Anaïs Viry (IRA, CHUV) reminded us the principle of a dual-energy CT and its advantages with respect to a single-energy. Very enlightening was her description of the different ways to obtain a dual-energy CT acquisition. She went into detail about the differences, advantages and drawbacks of the various technologies. The choice of CT technique, whether single source, dual source, single source twin beam or single-source rapid kilovoltage switching (fast kVp-switch), depends not only on the size of the patient, but also on the anatomical region and the technology.

Lucia Gallego (IRA, CHUV) followed right after and focused on PCCT. Besides being an extremely engaging and with no-doubt engaged herself physicist on this topic, she was great in giving us the basic principles of PCCT and, likewise Anaïs, an overview of the different technologies with which this can be achieved. She used clear examples to illustrate the advantages of PCCTs very well. In addition to the improved spatial resolution, she discussed the better contrast-to-noise ratio and the reduction of artifacts in implants.



The basic principle of PCCT relies in replacing the standard energy integrated detectors (scintillators) with semiconductors and a pixelated anode. With this solution, one is able to classify each single photon depending on its energy. Well, actually, an accurate classification of literally each single photon does not happen in the real world and Lucia did not hide all the challenges that come with such a complicated task. Big solutions always come with big problems. The biggest problem of all being energy resolution, i.e. the misclassification of a photon's energy. In an ideal world, where neutrinos have exactly zero mass and speed of light and gravity do not exist, each single photon corresponds to one pulse and one count, and the pulse's amplitude corresponds to exactly the photon energy. In the real world, where neutrinos have indeed a mass other than zero and c and g exist, some other events may occur that do not make this relation quite univocal, namely charge sharing, K-escape (characteristic X-rays generated within the detector's material) and the pile-up effect (2 almost simultaneous photons). So, energy discrimination in a PCCT is definitively not perfect. The good side of the story though is that the spatial resolution is very high (0.1 - 0.4 mm v. 0.5 - 0.8 mm of a normal CT), making PCCT suitable for scanning small lesions, and the CNR is about 40% higher than a standard CT (dosage of contrast agent can be reduced for the patients).

At the moment there are two main technologies for PCCT: Cadmium-based and Silicon-based detectors, both with their drawbacks and strengths.

Issues Of Interest

Companies that developed whole body PCCTs are Siemens (the only company FDA and CE marked), Canon, Philips and GE (all just prototypes). All are Cadmium based except for the GE which choose Silicon, more challenging and complex to realize but that could offer a higher energy resolution.

Serena Psoroulas (Radiation Oncology, Universitätsspital Zürich) closed the session offering the audience an insight on the first attempts at integrating PCCT images in the clinic. Despite the appealing capabilities of this technology - for instance in accurately distinguishing the different composition of high density material, therefore improving significantly the accuracy of dose calculation in those areas (i.e. HNC target volumes including some part of the teeth); or in offering an increased spatial resolution and finally in offering the practical advantage of not requiring a scanner-dependent HU calibration - PCCT still requires a fair amount of understanding before it can be integrated in the clinical routine. To name a few: the large number of images that come with just one single scan (they actually are the exact same image, but with a different information, as Serena pointed out several times) require a careful training of the staff: which one to use for which task? And then, auto-contouring models are trained on standard CT images: how are they going to perform on these new images?

After all these exciting novelties, we could all enjoy a much needed coffee break.

The last session took place after the break and it was about the main clinical applications of spectral CT. Unfortunately, some colleagues, including our group, had to make a start back home as the SBB app was already foreseeing another long and hiccupped journey back to snow-land.

Despite the troubled journey, we all enjoyed the useful information and insights that the speakers shared with the audience on this CE day and we would like to thank once again the organizers and all participants.

Francesca Belosi, Elena Hofmann,
Enrico Barletta, Helmut Härle
Kantonsspital Winterthur



Issues Of Interest

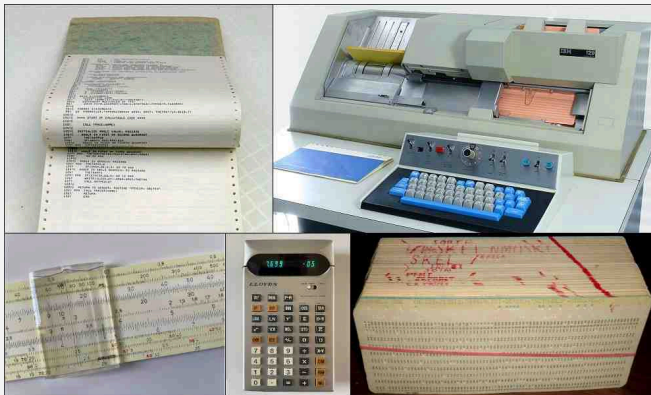
We've come a long way! ...and IT was the driver

During this year's Annual Assembly Hans Neuenschwander was awarded the title of Honorary SSRMP member as recognition of his career. Among his contributions to the field we must cite his work on the Macro MonteCarlo (MMC) method, for which he received the Varian Award in 1991. We report here a summarized transcript of his presentation, which incorporated very interesting historical insights.

Quite some time has passed since I started working in this field and I would like to share with you some memories of the road travelled so far.

To give you some backward perspective on the start of my professional life:

- In 1976 my class was the last one doing the matura with a slide rule. Pocket calculators were not a common good yet and therefore forbidden...



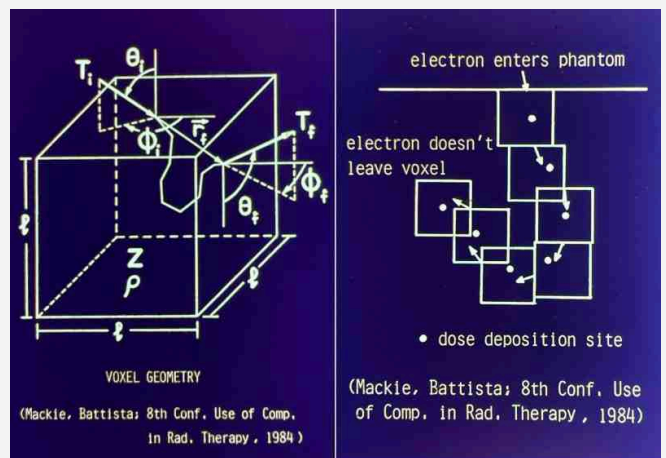
These objects were the daily life of a computational physicist in the 70es. Generations before AI, years before graphical user interfaces, Monte Carlo simulations were programmed and debugged by means of punched cards, printouts and manual calculations. Since the order of the cards was an integral part of the program, the diagonal red band drawn on the side of the punch card deck was an essential re-sorting tool in case of accidents...

- I started programming with punching card decks. Turnaround time for jobs was several hours, sometimes overnight, just to discover there was a missing comma in line 275. We have definitely come a long way!

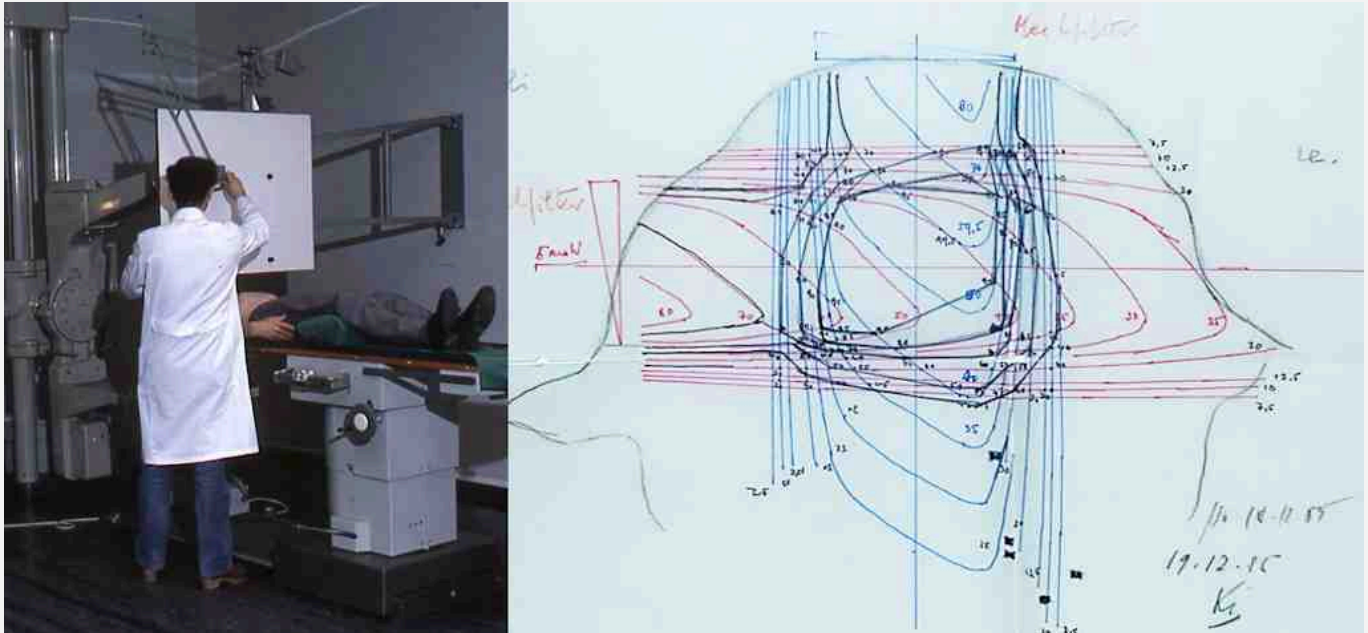
Decisions

We all make decisions in life that determine what and where we are today - ask yourselves... Sometimes, decisions come with a random element, like in my case. After graduating on a topic in cosmic ray physics (and spending many days in our lab on the Jungfrauoch...) I tried to turn my mountaineering hobby into a career as a doctorand at the Institute for snow and avalanche research in Davos. Unfortunately (or rather fortunately?) they were not able to offer me a position, so I turned to Medical Physics instead, a decision I never regretted.

The original MMC slides from Mackie and Battista. In 1984 presentations were made of actual slides which had to be specially prepared: one had to first prepare a black-and-white version, which was then brought to an office where a dedicated machine would convert it to its negative, projectable version.



Issues Of Interest



Left: taking manual measurements of patient circumference; right: pencil-on-paper dose distribution curves.

"The contouring was installed in the KSA beside the Cobalt-60 unit on a table on rails doing fluoroscopy for verification, simulation and contouring at the same time. This was done in the KSA regularly since 1965 until 1986. I started my work there in 1984 with RT and I did all the calculation of doses (you can still see my signature and that of my former boss....) This has been done regularly at that time without having any computer or even physicist and I have preserved some hundreds of these handmade calculations. I gave this example to Hans for presentation" (Courtesy Markus Notter, KSA 1985)

Then, during my PhD work, I stumbled upon the 1984 abstract on macroscopic Monte Carlo by Mackie and Battista, and decided to see how far I could take this idea. Definitely a decision with a random element...

Dreams

When you start something new, you might have dreams... When I started in the field of Medical Physics, manually taking patient circumferences and doing treatment plans was still quite common. However, at the Inselspital we already had a computer-based treatment planning system (GE

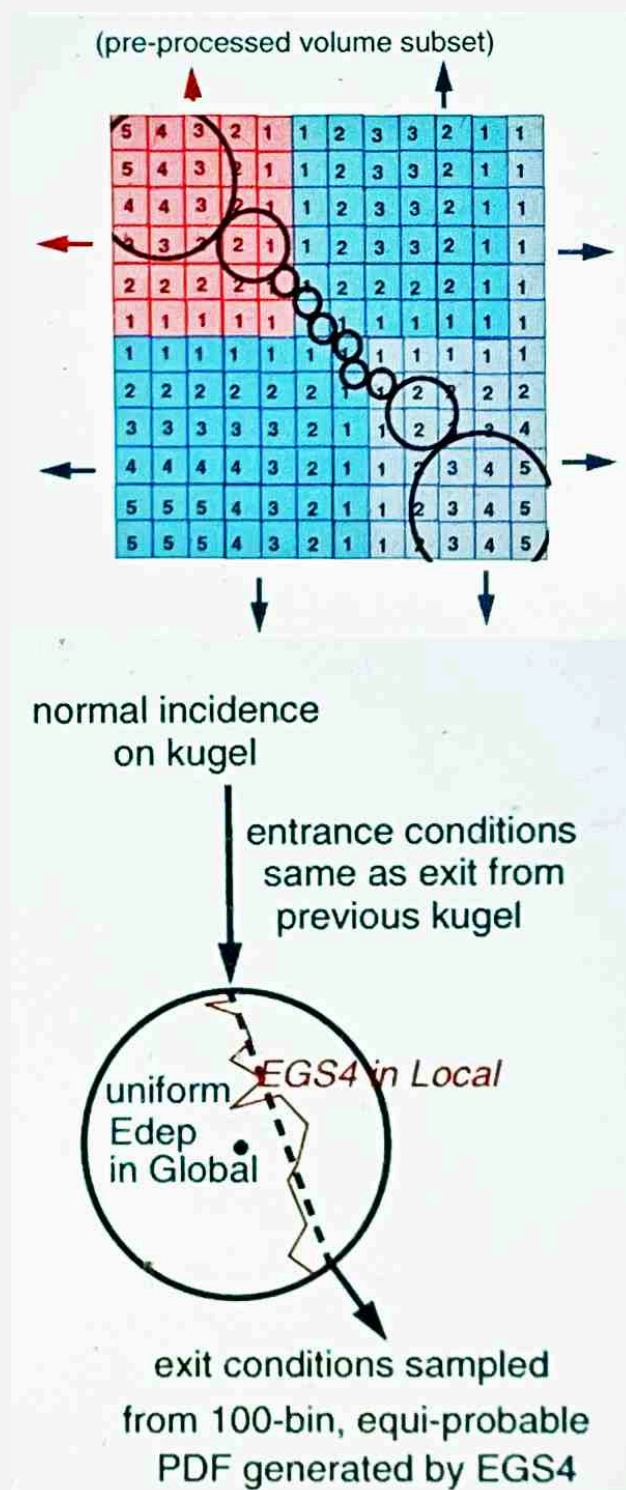
RT-Plan, memory 32 kByte!) and were able to do CT-based planning (CT-data input on large magnetic tape reels...). However, head and neck plans with lymph node involvement were never satisfactory, CNS whole axis treatments were a nightmare. We dreamed about just defining the shape of the dose distribution and then have the accelerator deliver it... As we all know, these dreams have turned to State of the Art. We've come a long way, indeed! My personal dream for my own research work was of course for MMC to stand the test of time... It seemingly has so far, and I'm very happy about that!

Doubts

On the other hand, with decisions come doubts... The research path is littered with doubts. We all know the feeling of seemingly doing an enormous amount of work for infinitesimal progress, over and over again; mulling over problems sometimes for weeks with seemingly no progress at all; hunting bugs for several days etc. But that's just how it is.

As for myself, I wasn't cut out for a life of full-time research work. Therefore, in 1994/1995, I grabbed the opportunity, together with my physician colleague Armin Thöni, to design and build a new RO institution at the Lindenhofspital. It was a once-in-a-lifetime opportunity, and the decision wasn't a tough one.

So further on, I focused on the clinical path, where there were other doubts lurking...: "Radiotherapy will be dead in 10-20 years time...", "Drug companies with their wonderful developments will take over all cancer treatment...", etc. Since I started in Medical Physics in 1986, I was confronted with these prophecies. Well, these 10-20 years have since passed more than once, and we're still here doing radiotherapy, and doing it better than ever. On the other hand, recently I've heard younger colleagues arguing that with all the wonderful tools we have today, "We have reached the end of developments in radiotherapy...", "It's not interesting anymore to enter the field", etc. I think this is completely wrong! We don't know yet where new developments (e.g. flash RT, AI...) will take us. But from my experience, I'm convinced that we have no idea what the state of the art will be 10-20 years from now. Therefore, in my view,



MMC principle with the Kugels. The original term "Kugel" became successful and is now used in English as well.

Issues Of Interest

worrying too much about the future of Medical Physics is rather pointless. To summarize: We've come a long way, but that's not the end of it!

Dedication

I think the most important virtue in our job is to be dedicated. Dedication is absolutely essential in our profession, be it in research or in clinical work.

Dedication means (amongst other things) to take difficulties as challenges; it means (especially in a clinical environment) making yourself available to your team. It also means doing a lot of patient related routine work, even if it's not rocket science and can be boring. But it has to be done. And dedication of course sometimes means working long hours...

Still, dedication is worth it. The gratifying part of being dedicated and persistent in your work is that you can really make a difference. And people will count on you and appreciate your valuable contribution.

I have no idea what motivated you, and which of your personal decisions led to who you are today. But you chose to work in this field, and I'm confident that like me at the end of your professional life you will be certain that you have made the right decision when choosing Medical Physics for your professional career.

I wish you all the best.

Hans Neuenschwander



Image generated by DALL-E with the following prompt: generate a picture that symbolizes the statement „We've come a long way“ in terms of progress in information technology.

2nd Applied Medical Physics (AMP) meeting 2024

Bern, 16th of December 2024

As this year is coming to an end, also the second AMP Meeting of 2024 took place in Bern on Friday December 16th. It seemed the date was well chosen as quite a big group of medical physicists gathered.

The first part of the meeting included an introduction by Margherita Casiraghi, who chairs the science committee during Maud Jaccard's maternity leave and a short report on SSRMP matters since the last AMP in June by Marta Sans Merce. The main focus was nevertheless on the presentations of Philipp Wallimann and Siria Medici.

Philipp presented the results of the project "Exploring reliability of quantitative MRI on an MR-Linac and a clinical scanner". The phantom used for the measurements was sponsored by the 2022 SSRMP research grant and it was nice to see how the societies financial contribution could empower a very interesting study.

Siria Medici presented the plans for our SSRMP Early Careers group: the aim of this new project is to help medical physicists in training or newly certified finding their way in our profession. Many activities are planned: educational courses as well as a platform for sharing materials and information. We all are very curious on where this project will lead our fresh colleagues.

The coffee break immediately offered an opportunity to share thoughts and inputs and were as usual a great opportunity to socialize. Thanks to our society for sponsoring drinks and food!

The second part was dedicated to the different working groups, first with short summaries on the progress of the existing working groups with the possibility to ask questions and give comments and inputs.

Once satisfied that many topics are addressed and new reports, recommendations and statements are to be expected in the near future, the focus switched to topics not yet addressed by existing working groups. One such topic is the use of AI – a new working group is already in the making, led by Davide Cester and Michele Zeverino who also gave a short presentation on the planned actions and objectives.



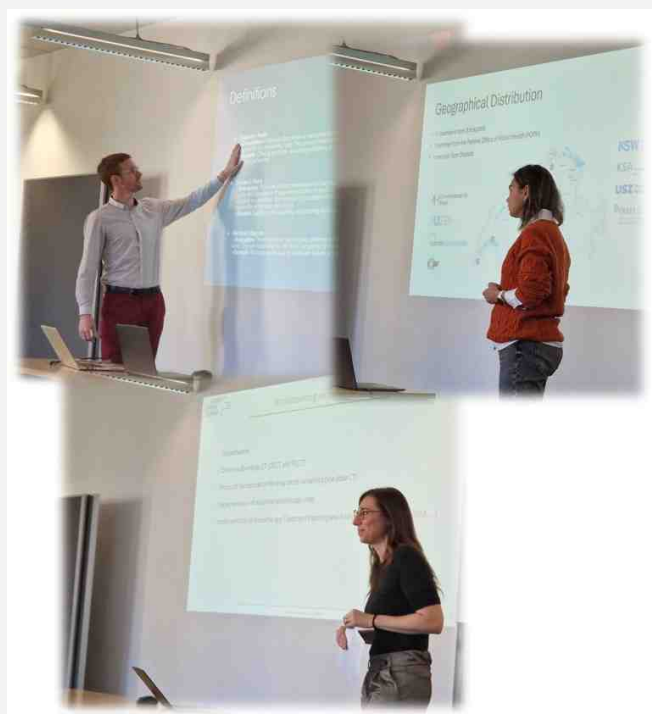
Siria Medici

Issues Of Interest

In a brainstorming session further topics for future working groups were determined: Hyperthermia, QA for Multi-Energy CT, Protocol harmonization, Adaptive Radiotherapy and Radiotherapy Treatment Planning and Analysis. For some propositions there were already persons interested in leading such a working group – so the future will bring even more productivity.

For me, it was a fruitful AMP with lively discussion, it is nice to see that our members are eager to participate.

Yvonne Käser



In clockwise order: Damien Racine, Natalia Saltybaeva, Margherita Casiraghi

Save the date: the next AMP meeting will take place in Bern on the 23rd of May.

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) Participation in the corresponding DGMP WG.
RPO2MPP (P. Manser) Deal with the implementation of the new radiation protection ordinance (RPO) into medical physics practice (MPP).
Quality control of TPS (D. Patin) Revise recommendation nr. 7 on QA of TPS.
MR-only radiotherapy (L. Milan) Provide indications for the implementation of a MR-only radiotherapy workflow.
Cumulative Dose (E. Samara) Correct use of the cumulative dose information and harmonization of practice in Switzerland.
Nuclear Medicine Physics Tasks (T. Lima) Recommend on the tasks of a medical physicist working in nuclear medicine.
Role and tasks of MP in x-ray imaging (D. Racine) Recommend on the tasks of a medical physicist working in x-ray imaging.
Fluoroscopy (M. Nowak) Fluoroscopy systems classification in medical imaging.
Room shielding in the kV-domain (N. Saltybaeva) Establish a methodology to calculate radiation protection plans for a variety of cases not explicitly covered by the RÖV/OrX.

Books and History

Isaac Asimov Fantastic Voyage (1966)

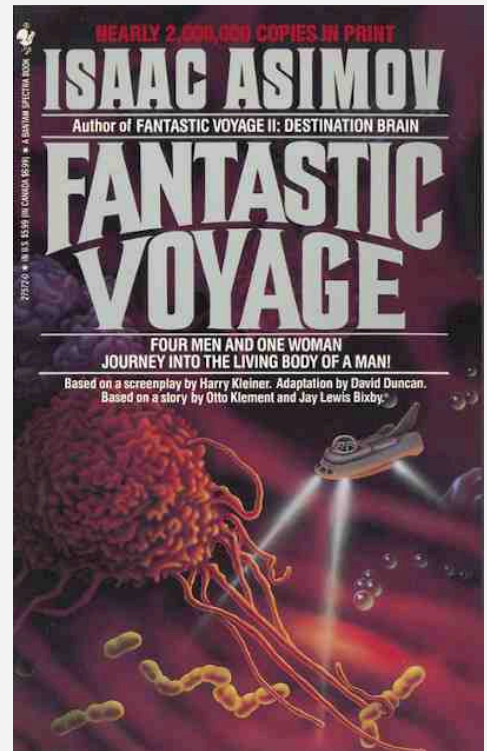
Four men and one woman journey into the living body of a man

Four men and one woman reduced to a microscopic fraction of their original size, boarding a miniaturized atomic sub and being injected into a dying man's carotid artery. Passing through the heart, entering the inner ear where even the slightest sound would destroy them, battling relentlessly into the cranium.

Their objective . . . to reach a blood clot and destroy it with the piercing rays of a laser.

At stake . . . the fate of the entire world.

Based on the screenplay for the 1966 movie of the same name, the novelisation was written by Isaac Asimov who also attempted to fix the most un-scientific parts of the plot; and although the main idea remains highly unplausible, the result is a classic example of Medical Science Fiction. Most of the technological discoveries and developments of the time have been incorporated in the adventure, in a curious mixture of angiography (1927), computed tomography (1973) and nuclear medicine, as presented in excerpts below.



They passed through a door into what was obviously an operating room. Grant glanced out through the observation window to see the usual sight of men and women in white, bustling about in almost visible asepsis, surrounded by the hard gleam of metalware, sharp and cold: and all of it dwarfed and rendered insignificant by the proliferation of electronic instruments that had converted medicine into a branch of engineering.

[...]

The bloodstream, it seemed, was tagged with a trace of mild radioactivity and the organism (it could be a man or a mouse) then took its own photograph, so to speak, on a laserized principle that produced a three-dimensional image. "You get a picture of the entire circulatory system in three dimensions which can then be recorded two-dimensionally in as large a number of sections and projections as would be required for the job. You could get down to the smallest capillaries, if the picture were properly enlarged."

[...]

Forming a rough semi-sphere beyond the patient's shaven, gridmarked head were a group of sensitive detectors intended to react to the presence of radioactive emission. [...] "Tracking", called out the sensor-technician, and flipped a switch. A half-dozen screens, each with its blip in a different position, lit up. Somewhere the information on those screens was fed into a computer, which controlled the huge map of the patient's circulatory system. On that map, a bright dot sprang into life in the carotid artery.

As you can see, since the miniaturized ship is nuclear-powered and self-propelled, the ICRP compartment models could be replaced with a direct tracking system, making Asimov's life incredibly easier...!

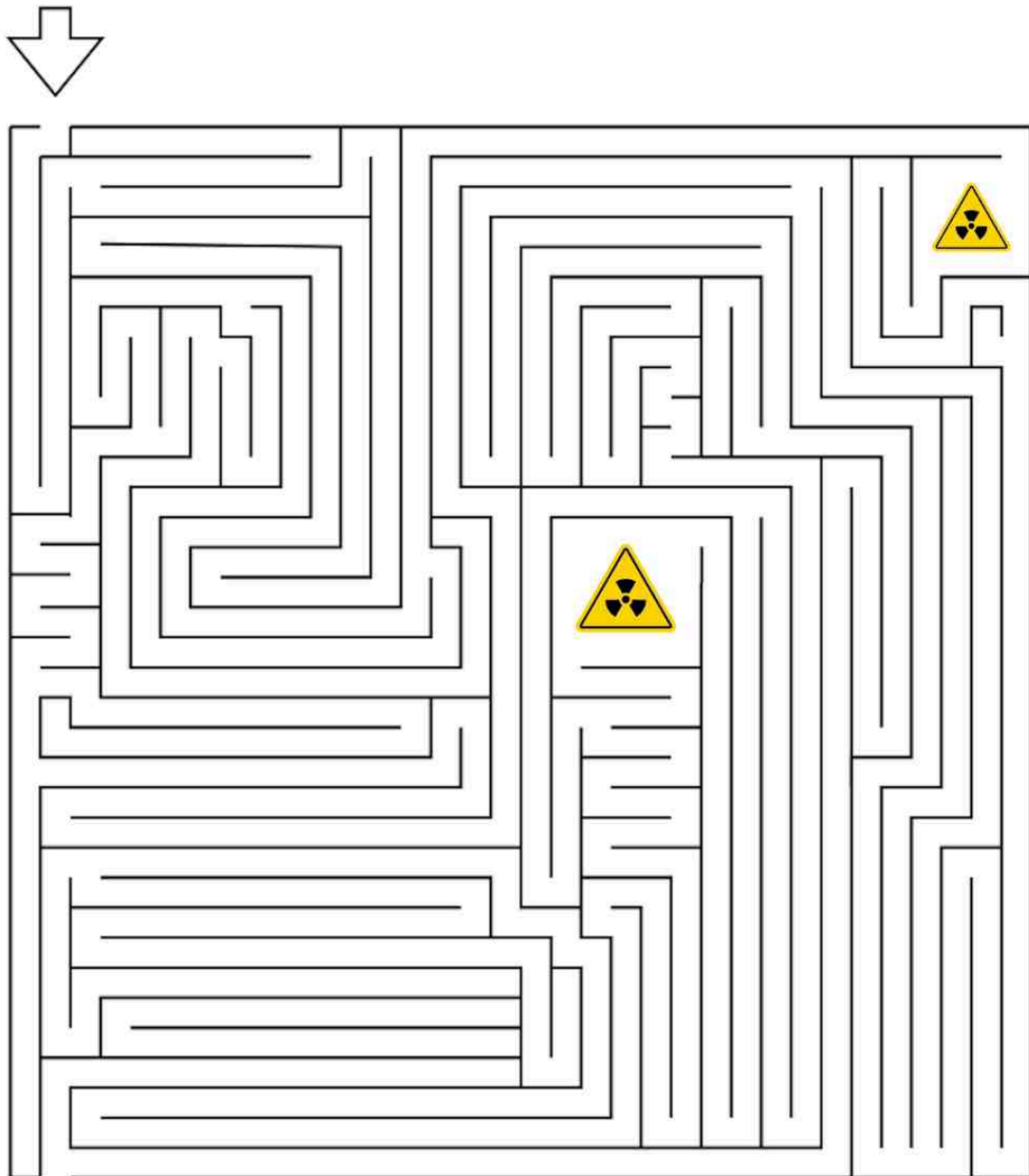
Davide & Marie

Off-duty

Labyrinth

Rules:

We are not about to give you any rules for a labyrinth ;-) Just try to avoid the radiation, please!



Solution of the previous game:

Don't worry we are physicists!

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- Reports on the work of various committees and commissions
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- Short portraits of individual institutions (E.g. apparatus equipment, priorities of work, etc.)
- Reports on national and international recommendations
- Short Press Releases
- Photos
- Cartoons & caricatures
- Announcement of publications (E.g. books, magazines)
- Announcement of all kinds of events (E.g. conferences, seminars, etc.)
- Short articles worth reading from newspapers or magazines (if possible in the original)
- Member updates (E.g. appointments, change of jobs, etc.)

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Deadline for submissions to Bulletin No. 111 (May 2025): 11.04.2025

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Event Calendar

Feb 26 Vienna, A	European Congress of Radiology - ECR 2025 Feb 26 - Mar 02 https://www.myesr.org/congress/
Mar 02 Pichl, D	Winterschule Pichl für Medizinische Physik Mar 02 - 07 and Mar 09 - 14 https://www.winterschule-pichl.de/
Mar 28 Bern	KSR/KNS Seminar "Radioactive waste" Mar 28 https://www.bag.admin.ch/
Apr 06 Athens, GR	ESTRO Course Comprehensive QM in RT: QA and Improvement Apr 06 - 09 https://www.estro.org/Courses/
Apr 28 Gotheborg, SE	Optimisation in X-ray and Molecular Imaging (OXMI) 2025 Apr 28 - 30 https://www.oxmi2025.com/
May 02 Vienna, A	ESTRO 2025 May 02 - 06 https://www.estro.org/Congresses/ESTRO-2025
May 15 St. Gallen	Swiss Congress of Radiology - SCR'25 May 15 - 17 https://congress.sgr-ssr.ch/
May 23 Bern	SSRMP AMP Meeting May 23 https://www.ssrmp.ch/events/
Jun 04 Nantes, F	63èmes Journées Scientifiques - SFPM Jun 04 - 06 https://www.sfpm.fr/agenda/categorie/journees-scientifiques/
Sep 11 Davos Klosters	29 th Annual SASRO Meeting 2025 Sep 11 - Sep 13 https://www.sasro.ch/home-2025
Oct 29 Geneve	SSRMP Congress and Annual Assembly Oct 29 - 30 https://www.ssrmp.ch/events/
Nov 30 Chicago, USA	RSNA 2025 Nov 30 - Dec 04 https://www.rsna.org/annual-meeting



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!