

BULLETIN

December 2022





Letter from the Editors

Dear SSRMP members,

sadly, this is my last Editorial for the SSRMP Bulletin. As announced during the general assembly, Davide Cester (Diagnostic and Interventional Radiology, University Hospital Zürich) and Marie Fargier-Voirion (Radiation Oncology, Clinique de Genolier) will replace the current Editorial Team. I'm sure that they will do a great job based on the work they have already done helping out for the last couple of issues and I wish them a lot of fun along the way!

As for me, I am grateful for the opportunity I was given back in 2015 to join the Editorial board of the SSRMP Bulletin. Despite my initial skepticism and reluctance, I'm grateful for the trust I was given when assigned with the editor's responsibility one year later. I did have a lot of fun and enjoyed the satisfactions as well as the challenging times and tasks of being editor of the Bulletin. Besides pushing me out of my "cubby-hole" and keeping myself informed about what's happening in the medical physics field in Switzerland and outside Switzerland (conferences, recommendations, new members, new applications, new installations...), the

real added value - the one which is priceless - has been the human connections that this task has allowed me to establish. These included connections with the board members, with the people from whom I asked for contributions (I probably became the nightmare of the society!), with the people who spontaneously sent contributions and the ones I interviewed virtually or in-person. I still cherish the memory of sharing professional and human experiences of working in our field, sitting in a Café at the riverside with Hans Neuenschwander and Roger Hälgi for the "Interview with the peers" (Bulletin Nr 100). Just this year at the SSRMP Meeting, a medical physicist from Sion who I had contacted recently for Personalia stopped me to introduce herself in person and say "Hi".

These human exchanges are what have been priceless for me doing the work of the Bulletin. I sincerely would like to thank everyone who has been open for an interaction, independently from their availability to write; and an even more special thank you to all who decided to send a contribution. I encourage everybody to become engaged at least once with the SSRMP Bulletin. It can pay back!

Finally, a large and heart-felt thank you goes to the editorial team: Jean-Yves Ray, Shelley Bulling and Nathan Corradini. Jean-Yves Ray significantly supported me every step along the way, especially during the first few delicate months of transition to the new Bulletin's layout; Nathan Corradini and Shelley Bulling were very precious with their English review and contributing to the collection of contributions for Personalia and SpotLight On. All of them have also always been extremely positive and welcoming of new ideas (the PhD platform is a great example).

With these lines, I leave you to the reading of this issue. The December Bulletin always brings some excitement with the announcements of the new board members or chairs, as well as of the "winners" of the Varian award and SSRMP Research Grant.

Enjoy the reading and I wish all of you Merry Christmas and Happy New Year!

Francesca Belosi
On behalf of the Editorial Team

Contents

BULLETIN 104 - December 2022

1 Editorial

SSRMP News

- 3 President's Annual Report
- 7 Professional Affairs Committee Annual Report
- 9 Results of the TLD Intercomparison for Megavoltage Units 2022
- 17 SSRMP Research Grant 2023
- 18 Varian Award for Radiation Oncology of SSRMP 2023
- 19 Varian Award 2022
- 20 Education Committee Annual Report
- 22 Results of the Certification Exams in Medical Physics (SSRMP)

Cover Image: "Under the Wave off Kanagawa" also known as "The Great Wave" (ca. 1830-1832), from the series "Thirty-six Views of Mount Fuji" by Japanese artist Katsushika Hokusai.

This woodblock print is part of the H. O. Havemeyer Collection owned by the Metropolitan Museum of Art in New York; the image has been released as Public Domain.

Issues of Interest

- 23 4th European Congress of Medical Physics
- 24 SSRMP Continuous Education Day: AI in the field of Medical Physics
- 26 55th SSRMP Annual Meeting
- 29 SpotLight On
- 31 Personalia
- 33 SSRMP Editorial Staff
- 34 SSRMP Board
- 35 Conference Calendar

PRESIDENT'S ANNUAL REPORT



Dear colleagues,

After many Covid related restrictions it was possible to meet you personally at our last year's general assembly, which was special in that it was held in conjunction to an excellent continuous education day. The topic was "*Challenges of medical physicist in the operating theatre*" and there are many... as it was illustrated when everyday situations were presented. Apart from all the different talks, there were a lot of in-person discussions possible thanks to the great organization of Alexander Schegerer, Stefano Gianolini, Roland Simmler and Nick Ryckx. Once again thanks to all of you for this excellent day.

Within the last year the board held 6 board meetings either online or in person. As in previous years, many different topics were discussed and they can be summarized as follows:

- Two AMP meetings
- SSRMP continuous education day
- Support of SSRMP working groups
- Discussions with and related to the Federal Office of Public Health
- Collaborations with other societies
- Research grant
- Varian prize
- Annual meeting in Thun
- Issues related to the Journal of Medical Physics

During the last year two AMP meetings took place: one online and the second one in person.

Last December we had the great opportunity to have Stephanie Tanadini-Lang and Marc Pachoud presenting us their respective linac-MRI system. These excellent first-hand presentations from installation to most advanced adaptive treatment modalities demonstrated perfectly the complexity and the team work necessary to bring these techniques to the patient – definitely a highlight. During this AMP also the mitigation of the MIP group into the AMP was finalized and executed. Let me thank here once more Gerd Lutters for leading the MIP group for many years.

In the June 2022 edition of AMP Mania Aspradakis presented the version of the recommendation 9 on "*Reference dosimetry in low and medium energy x-ray beams*" as chair of the working group. As usual the participants at AMP took the opportunity to contribute to the



PRESIDENT'S ANNUAL REPORT



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content of the presented recommendation with additional inputs and discussions leading to an improved final version. I would like to thank all members of the working group for their excellent work, which eventually will be published in our society journal. But I would also like to take this opportunity to thank the members of the science committee for all the contribution in their reviewing tasks. This discussion was followed by an outstanding presentation from Andreas Mack entitled “Introduction to ZAP-X gyroscopical radiosurgery”. Again from first-hand experience, Andreas provided very detailed information about this new delivery system being the first and only device of this kind in Switzerland so far. Once more a highlight at an AMP event, which is not self-evident but rather owing to the great work and effort spent by Raphaël Moeckli in organizing the AMP. So, a big thank you also to you, Raphaël!

Another big change that happened in the last year is related to our society journal, the Journal of Medical Physics. Since January 1st 2022, the Journal is open access as already announced a year ago. One other change is that there was an agreement to support the publication of recommendations of those with a broad interest, which in my opinion is not a given opportunity and of course only possible after successful peer review. As mentioned above and to my best knowledge our



recommendation 9 will be the first one taking this path. Thus, so far, our Journal had a good start and is well prepared for future developments. This is also demonstrated by the impact factor. While last year's outstanding impact factor of our Journal was already 4.82, this year's impact factor is skyrocketing at 7.215! Thus, I appreciate the excellent work of the editorial board of our Journal.

But also our society's editorial team handling the website, the newsletter, the bi-weekly news and the Bulletin have new members, namely Lotte Wilke, Anisoara Socoliuc Toquant, Marie Fargier-Voiron and Davide Cester, who had a jumpstart and I am looking forward to their new “handwriting”. All of them together with the established editorial team of Francesca Belosi, Shelley Bulling, Nathan Corradini and Jean-Yves Ray did an awesome job I cannot highlight enough, so a big thank you to all of you.

PRESIDENT'S ANNUAL REPORT



During the last year many discussions and online meetings with our partner societies DGMP and ÖGMP took place. The exchange of information and collaboration improved substantially over the last couple of years and I am very pleased with the level of activity and how we work together. Already now there are meetings and decisions to take for the upcoming tri-nations conference, which will be held in conjunction with the next European Conference of Medical Physics 2024 in Munich. In this context I also would like to mention the Winterschule Pichl, which is also a collaborative event from our partner societies and SSRMP. After being cancelled last year, a summer edition was possible in 2022 and it was a pleasure to be there once again. Since 2018, SSRMP was represented in the Kuratorium of the Winterschule by Peter Manser, who was strongly engaged in finding highly interesting and attractive course topics in a time that was not

easy due to the pandemic situation. Thus, a great thank you to him for all his efforts and time spent for the Winterschule. The new SSRMP delegate is Reto Küng and I wish him a good start, an interesting time and many good ideas for the next courses.

But there were many more interactions with other societies such as the collaboration related to the Swiss Congress of Radiology. As in previous years SSRMP participated in the scientific committee and was again involved in defining the conference program for the SCR'22. I think SSRMP was never more present than this year and the presentations given at the conference were excellent. I just would like to encourage more of you to contribute actively by providing suggestions for joint sessions, by submitting abstracts and participating at the conference – starting with the SCR'23 in Davos. Overall, I can summarize that over

the last year the collaboration with all other societies as well as the FOPH was again very constructive, balanced and supportive all of which I think is an important aspect for SSRMP.

Most recently and in my opinion another highlight was the SSRMP continuous education day 2022. Thanks goes to the organization committee Stefano Gianolini, Stephan Klöck, Silvan Müller, Bertrand Pouymayou and Michele Zeverino, who chaired the committee, for preparing such an outstanding program about “*Artificial Intelligence in the field of Medical Physics*” held at the Lindenhof hospital in Bern. Many aspects from different views such as imaging, therapy and industry were presented and many high-quality discussions took place during the sessions and in the breaks. All the presentations including the comparison of artificial intelligence with the Swiss Railway System contributed to shed some

PRESIDENT'S ANNUAL REPORT

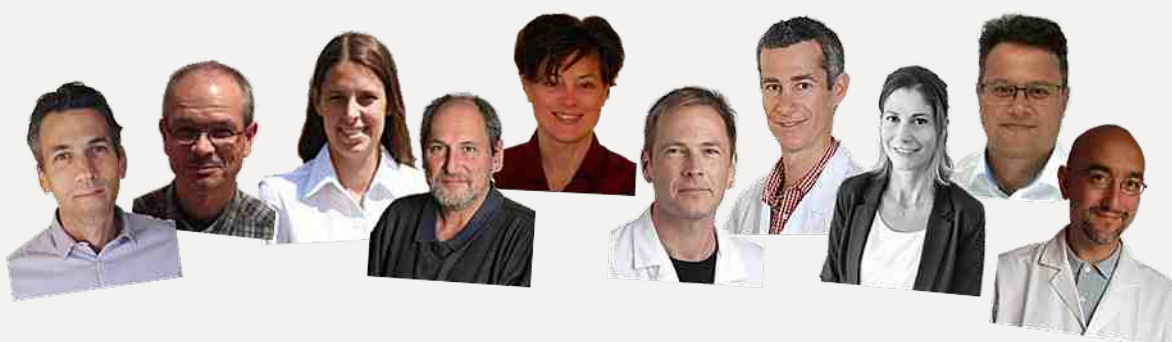
light on the AI-black box now being an AI-gray box, so meaning also that not everything is crystal clear yet.

Apart from all the board activities I already mentioned, there were many more activities going on over the last year and I would like to refer to the dedicated reports by the three permanent committee chairs for more information about these SSRMP topics. This gives me the opportunity to thank the chairs of these committees, namely Jérôme Krayenbühl (chair education committee), Jean-Yves Ray (chair professional affairs committee) and Raphaël Moeckli (chair science committee) for all their great work and all the time spent during the year for the benefit of our members and our society.

So, this general assembly is my last task as president of our great SSRMP society. At this point, I would like to express my deepest thank to all the board members: Stefano Gioanolini, Maud Jaccard, Yvonne Käser, Jérôme Krayenbühl, Roman Menz, Raphaël Moeckli, Markus Notter, Stefano Presilla, Regina Seiler and Jean-Yves Ray. They all did such an amazing and outstanding job and I am very thankful that I had the opportunity to work with them during the last years. It was just an awesome experience for me personally being a part of the SSRMP board with all of them, which I cannot express in meaningful words. Nonetheless I say THANK YOU. I am especially thankful for your trust in me and it was a pleasure to serve you and SSRMP with what I was able to offer.

Evidently, there are many more who served our society and did a great job. Although not mentioned by name, please feel addressed by my big thank you. In addition, every single one of you is invited to come on stage of SSRMP. Finally, I thank you all and wish you all the best. Take care, stay healthy, and see you soon.

Michael K Fix
SSRMP president



PROFESSIONAL AFFAIRS

Professional Affairs Committee Annual Report



Dear colleagues,

I have sat on boards since 2002. It's time for me to make room for young people.

Indeed, I entered the board of the now defunct *Berufsverband* of MP (SBMP - APSPM - APSFM) when it was founded in November 2002 as "sister" society of SSRMP. Eight years later, in June 2010, I supported, as board secretary, the dissolution of SBMP. Its main tasks, such as the management of the Swiss certification in medical physics, were continued by the newly created committees of SSRMP. I was simultaneously elected to the SSRMP board under the presidency of Raphael Möckli. Then, I enjoyed two more presidents'

terms with Peter Manser and Michael Fix chairing the committee of professional affairs until today.

Thanks to all the board and committees members for this long and fruitful collaboration.

During this past term, we haven't had great achievements to report but the usual business was busy:

- A survey to collect the members' expectations on the content of the Bulletin had been conducted and their results published in Bulletin 101. Since then, the editors have been trying to steer the focus on their readers' interests. They have been able to offer three issues of the Bulletin this year again thanks in particular to your contributions.

- We ran another survey where every member had to select if they opted in to receive the ZMP journal and the Bulletin in print: very few still preferred the paper copy (approximately 20 for the ZMP and 30 for the Bulletin).
- The distribution of newsletter was sustained, with an increase to over 35. We do our best to space out distributions in order to avoid inconvenience to users while ensuring timely delivery of information. The consultation rate reached an average of 55% and 70% at maximum which confirms the interest of the subscribers.
- The society's websites require continuous updates to remain a useful resource for the community.

PROFESSIONAL AFFAIRS

As a refresher, I would like to draw your attention to two online forms dedicated to 1) **post a job offer**, and 2) **provide the secretary office with your updated contact details**. Use them to ensure that the content is distributed to the various persons in charge.

- Since the annual meeting at PSI in 2019, we rely on PSI webengine indico to manage a great part of the conference. It makes, among others, the processes of participants' registration and abstracts' submission easier for the local organizer. The feedback is good. Thanks to Daniel Frauchiger and Silvan Müller for the development of the SSRMP know-how.

Public relations activities to disseminate information on SSRMP activities to promote medical physics science and education are increasing as a result of greater interests and a more active communication. In my last annual report, I pointed to the significant resources of the committee that had been devoted to running the society's communication channels. We are adapting to these new conditions by allocating more resources. Four colleagues

responded to our call for applications and signed up at the beginning of this year to succeed Francesca Belosi and myself. The new team was recently presented in Bulletin 103. Marie Fargier-Voiron and Davide Cester were keen to take on a new challenge by continuing the Bulletin's adventure. Anisoara Socoliuc Toquant and Lotte Wilke were keen to take over digital communication. Part of our work has been to train them to be able to resume operations today. I wish them much pleasure and great success. Francesca and I can leave in peace. A special thanks to Francesca and her team workers Shelley Bulling and Nathan Corradini for their unwavering commitment over so many years.

The committee supported and collaborated with EFOMP delegates Sara Alonso and Elina Samara. On behalf of the SSRMP, they follow up on topics of interest and opportunities. If you have any questions about EFOMP, they are the colleagues to contact. I would like to express our gratitude to them for their commitment to our society.

We haven't run the "salary survey" since 2 years. So, the next committee will certainly organize the

7th survey next year. To provide our medical physicist members with accurate unbiased data, a significant participation rate is required. Consequently, we encourage you to take part in the survey. We apply appropriate measures to keep your personal data confidential and not visible from the committee members. Think collective!

Finally, I leave the committee to my successors, happy and sad at the same time. Over the last ten years an excellent job has been done in supporting the development of our profession, particularly in clinical imaging and radiation protection. Also, almost half of the board members are primarily active in this discipline. The work never ends!

Let me finish with warm thanks to my committee team.

On behalf of the committee for professional affairs,

Jean-Yves Ray

[1] <https://ssrpm.ch/jobs/>

[2] <https://ssrpm.ch/intranet/personal-data-update-request/>

Results of the TLD Intercomparison for Megavoltage Units 2022

1. Introduction

The Institute of Radiation Physics (IRA) in Lausanne is mandated by the Swiss Society for Radiobiology and Medical Physics (SSRMP) to organize an annual dosimetry intercomparison for the gantry driven linacs. The 2022 intercomparison followed the same procedure and used the same equipment to carry out the measurements as previous years. The aim was also the same i.e. to check the absolute dosimetry. This year, we focused on static photon and electron beams.

Thirty-two institutions took part to the 2022 intercomparison with a total of 157 beams checked, including 106 photon beams (61 beams with flattening filter (FF) and 45 flattening filter free beams (FFF)) and 51 electron beams.

Similar to past audits, the requirement was to check each photon energy used in the institution only once. For example, if two machines are matched, only one machine had to be checked, similarly when two machines are equipped with a 6X beam, only one has to be checked.

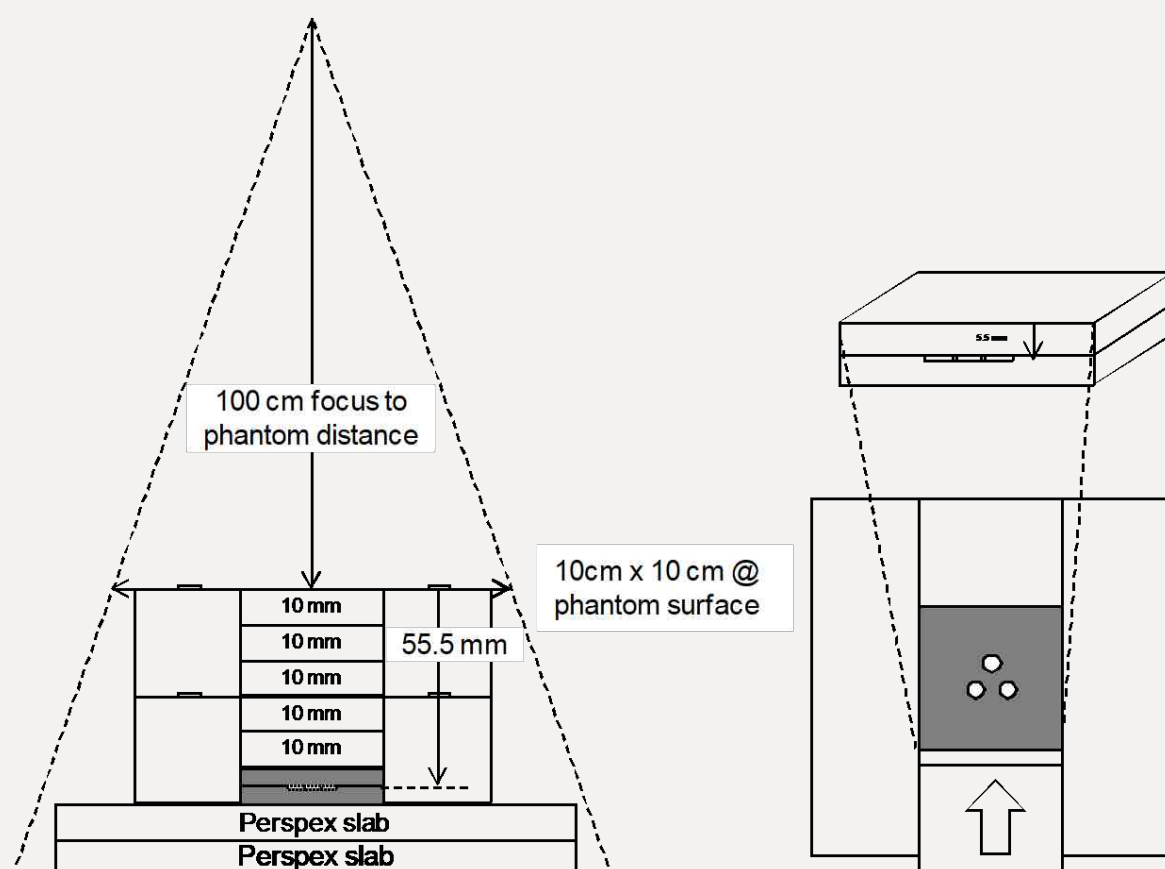


Figure 1. Assembly of the measurement equipment for photon beams: phantom and (closed) phantom frame

2. Materials and methods

The same TLD discs (4.5 mm diameter, 0.9 mm thickness, Harshaw Inc.) and solid water phantoms as those for the photon dosimetry intercomparisons of 2011 to 2021 have been used.

For photon beams, the solid phantom was composed of two stacked Perspex phantom frames. The inner square was 4 cm in length, the outer square 10 cm x 10 cm. The frames have been filled with five plain RW3 (PTW Freiburg) slabs, and one slab containing three TLD. The slab dimensions are 40 mm x 40 mm x 10 mm. The

measurement depth in solid water was 5.55 cm. The phantom was placed on Perspex or water equivalent material (at minimum 5 cm). This arrangement is shown schematically in Figure 1.

For electron beams, the same material was used. The solid phantom was composed of one or two stacked Perspex phantom frames. The frames have been filled with the plain RW3 (PTW Freiburg) slabs and the slab containing the TLD, positioned at the appropriate depth by combining plain slabs of 5 and 10 mm thickness. The phantom was placed on Perspex or water equivalent material (at minimum 5 cm). This arrangement is shown schematically in Figure 2.

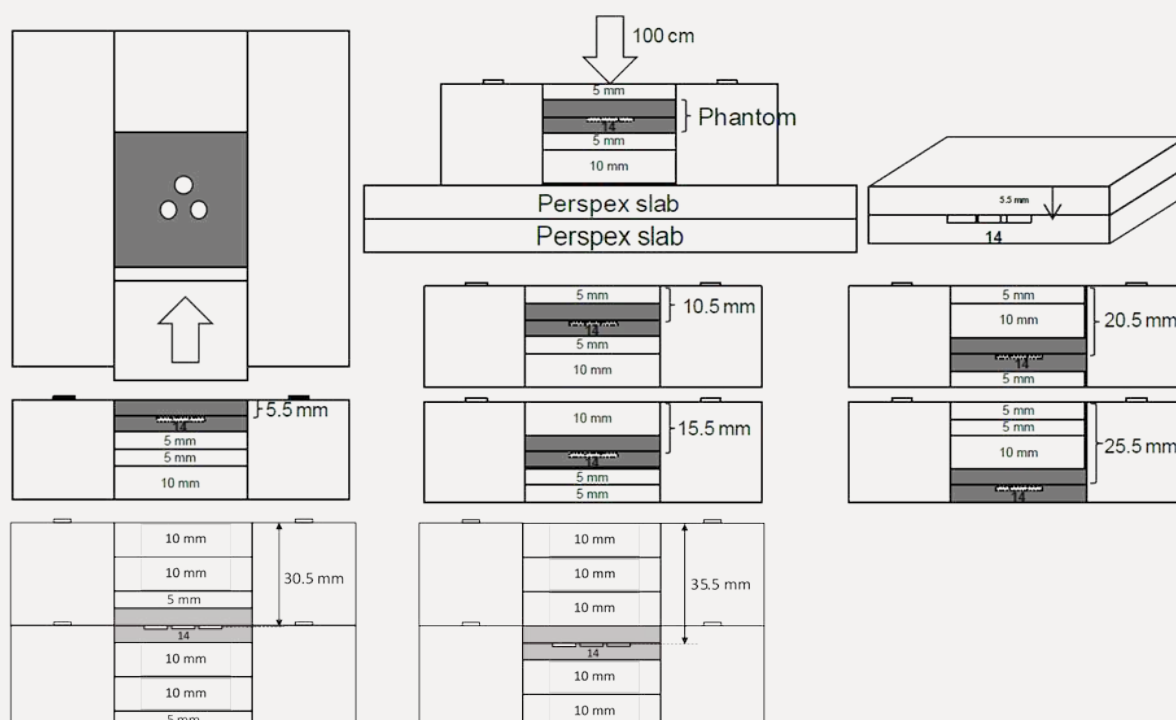


Figure 2. Assembly of the measurement equipment for electron beams: phantom and (closed) phantom frame

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Each TLD slab contains 3 TLD chips located on a circle 5 mm away from the center. A correction was applied on the TLD reading to account for the slight difference between solid water and water. For this reason, the user was asked to assume that the phantom was fully water equivalent and provided for sufficient scatter, as it would be the case in a large water phantom.

A TLD annealing oven and a Harshaw 5500 reader have been used, similarly to earlier intercomparisons. Thanks to the cobalt-60 irradiation facility available at IRA in the calibration laboratory, we could use a less time consuming procedure insuring the appropriate metrological traceability. In the years 2017-2020, we calibrated the cobalt irradiator in terms of absorbed dose to water for a given radiation quality against the IRA reference dosimeter for photons calibrated at METAS.

In 2021, a direct calibration of the TLD dosimetry system was carried out at METAS for the photon beams. This calibration was used again this year. For electron beams, the same calibration was used as before. This factor is in fact independent of the energy and its value is 1.056 ± 0.008 (relative to Co-60).

This allows us to prepare reference TLD at IRA for each series of measurements in the participant's beams.

The absolute dosimetry with TLD requires several corrections: non-linearity of the TLD response with dose, dependence of photon energy and fading effect. The non-linearity and fading corrections have been

carefully determined at IRA. The energy dependence of the TLD response is included in the calibration of the cobalt irradiator. The correction associated to the replacement of the water phantom by the solid water phantom is also included in the calibration of the irradiator.

For the intercomparison irradiations, the measurement conditions in the solid phantom were as follows: source to surface distance 100 cm, field size 10 cm x 10 cm at the surface of the phantom, dose to the TLD close to 1.00 Gy.

The participants were expected to provide their own value of dose (stated dose). It had to be specified at the measurement depth for photon beams (5.5 mm), and at the depth of maximum dose for electron beams. The percentage depth dose was also to report. This allowed us to compare the TLD dose value at the measurement depth with the stated dose at the maximum.

Five runs of measurements were necessary for the 32 participants. A calibration of all the TLD was carried out before and after each run, in order to determine precisely the individual sensitivities of all the TLD chips. For each run, a series of 10 TLD ("reference TLD") in each group of 50 TLD were irradiated to the reference dose of 1 Gy at the cobalt irradiator on the irradiation date recommended to the participants. Then these 50 TLD were all read in one batch and the dose delivered to every chip was calculated from the ratio of its indication to the mean indication of the 10 reference TLD. Finally, the corrections mentioned above were applied.

3. Results

The agreement between the stated dose and the TLD measured dose is evaluated with the ratio “stated/measured” (noted D_s/D_m) and taking into account the TLD measurement accuracy. For photon beams, an agreement within 4% is considered a satisfactory check. For electron beams, the criterion is 6%.

3.1 Electron beams

The mean ratio for the different beam energies is given in Figure 3. The deviations from the unity are probably due to statistical fluctuations. The distribution of the D_s/D_m ratio for all the electron beams is illustrated in Figure 4. The statistics of the D_s/D_m ratio for all the electron beams are given in Table 1.

The mean value of D_s/D_m for all electron beams is 1.013. A small bias between the participant dosimetry and the TLD dosimetry of this audit might be present, especially for the 9 MeV beams. 98% of the results are in the interval 0.94-1.06, i.e. within $\pm 6\%$, which is judged satisfactory. Only one beam did not meet this criterion. In addition, 75% of the results are in the interval 0.97-1.03, i.e. within $\pm 3\%$.

The probability for the D_s/D_m ratio to be outside of the interval 0.94-1.06 only due to the normal fluctuations of the TLD signal is low. Indeed these fluctuations have been investigated for the uncertainty evaluation and the observed standard deviation was low.

Parameter	Electron beams
Beam number	51
Mean	1.013
Std dev.	2.4%
Minimum	0.956
Maximum	1.079

Table 1. Electron beams: observed ratio "stated dose/measured dose"

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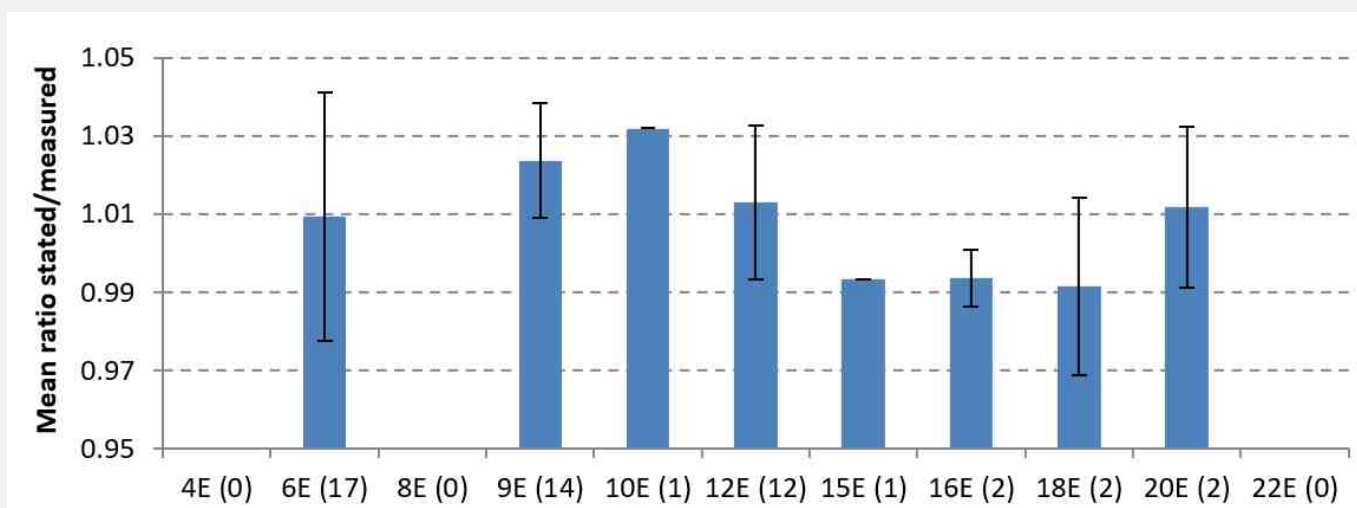


Figure 3. Electron beams: mean D_s/D_m ratio for the different radiation qualities. The number of beams is given in brackets. Error bars=std dev.

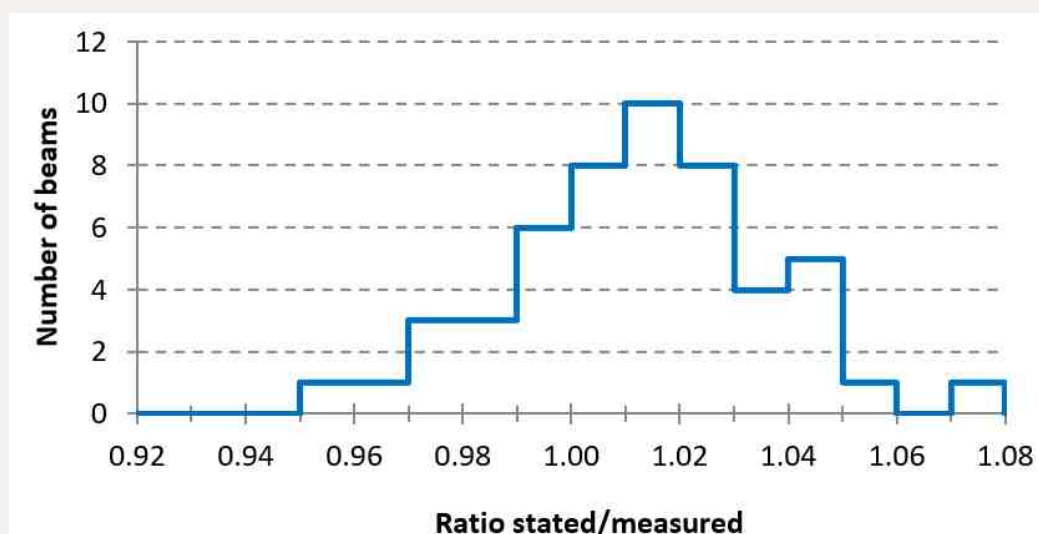


Figure 4. Electron beams: histogram of D_s/D_m ratio for all 51 beams

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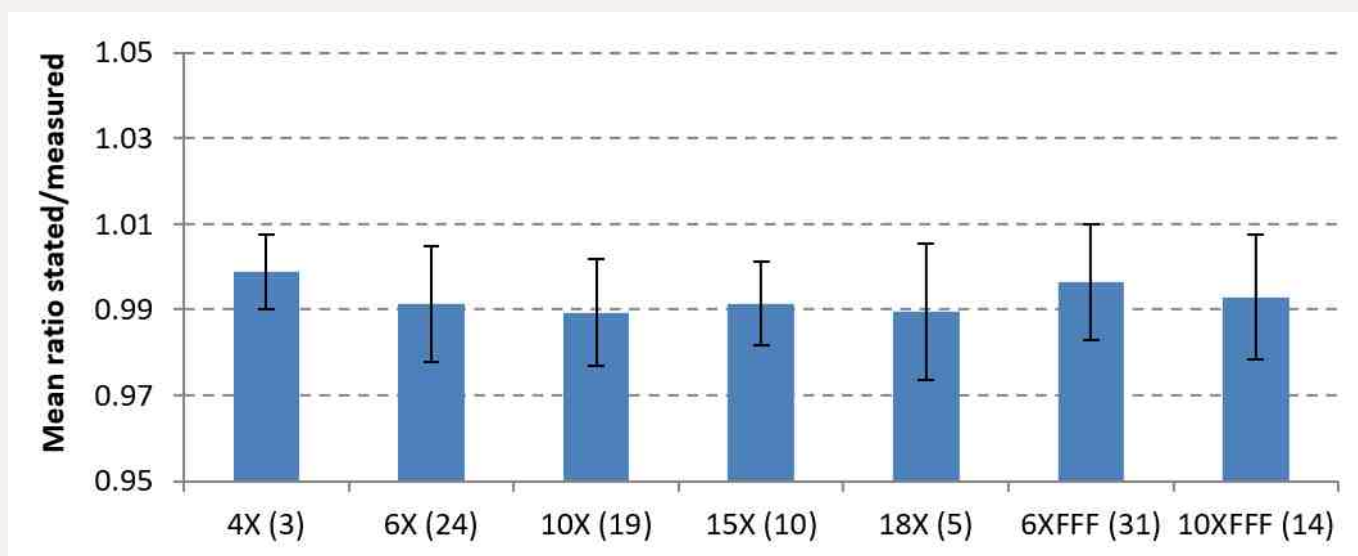


Figure 5. Photon beams: mean D_s/D_m ratio for the different radiation qualities. The number of beams is given in brackets. Error bars=std dev

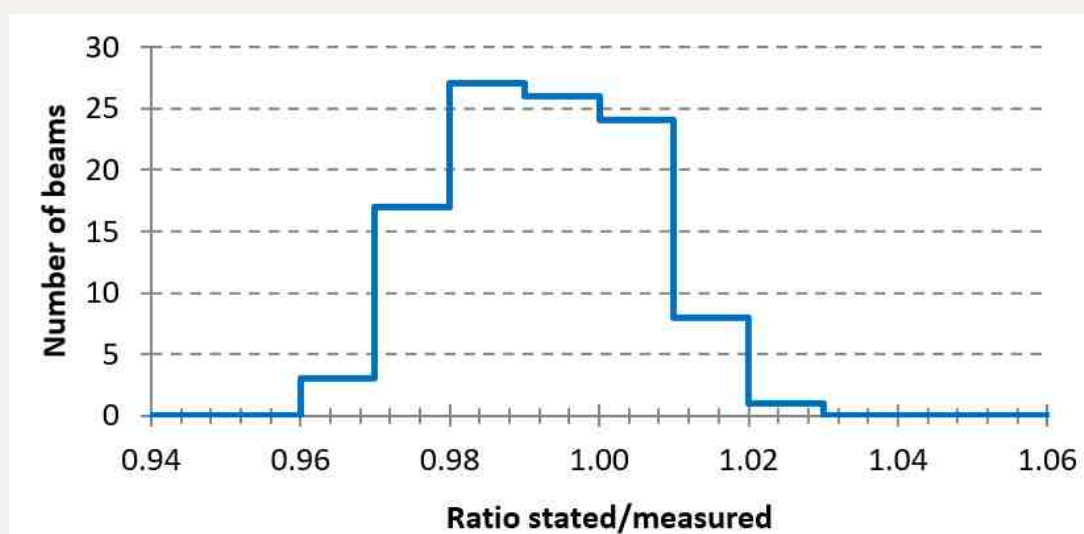


Figure 6. Histogram of D_s/D_m ratio for all 106 photon beams

3.2 Photon beams

We checked 61 conventional beams with flattening filter (FF) and 45 flattening filter free beams (FFF). The mean ratio for the different beam types and energies is given in Figure 5 with the standard deviation. This repartition seems to show that all deviations from the unity can be attributed to statistical fluctuations.

The distribution of the D_s/D_m ratio for all the photon beams is illustrated in Figure 6. The statistics of the D_s/D_m ratio for all the photon beams are given in Table 2.

The mean value of D_s/D_m for all photon beams is 0.993, which indicates a small bias. The difference between the mean values of D_s/D_m for FF beams (0.991) and FFF beams (0.993) is not significant.

For all tested beams (100%), the value of D_s/D_m is in the interval 0.96-1.04, i.e. within 4%, which is judged satisfactory. In addition, 80% of the results are in the interval 0.98-1.02, i.e. within 2%.

We have to mention that two participants revised their first estimation of the specified dose due to an incorrect determination of the distance effect.

Uncertainties

The uncertainty on the dose measured using TLD includes the contributions due to positioning of the phantom in the beam, reading procedure of TLD with all influence quantities and reference in absorbed dose traceable to METAS for the cobalt irradiator at IRA.

The uncertainty budget is given in Table 3. The contribution coming from the procedure with reference TLD and measurement TLD was determined using a statistical method. The fluctuations of the ratio of three measurement TLD over ten reference TLD were analyzed for at least six irradiations of 300 TLD.

The combined standard uncertainty is obtained by quadratic summation. For photons, it amounts to 1.23% for each measurement with 1 slab containing three TLD, and 1.16% for the mean of 2 such measurements.

For the expanded uncertainty we adopted only one figure of 2.5% ($k=2$) for simplicity. For electrons, the expanded uncertainty ($k=2$) is 4%.

Parameter	FF beams	FFF beams	Both types
Beam number	61	45	106
Mean	0.991	0.995	0.993
Std dev.	1.3%	1.4%	1.3%
Minimum	0.970	0.961	0.961
Maximum	1.017	1.016	1.017

Table 2. Ratio "stated dose/measured dose" (FF=conventional beams with flattening filter, FFF=flattening filter free beams)

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Contribution	Comment	Photons std unc.	Electrons std unc.
Positioning	± 1 mm	0.2%	0.2%
Cobalt irradiator calibration	-	1.05%	1.5%
Energy response of TLD	-	0.1%	1.0%
Stat. fluctuations of meas.TLD/ref.TLD	type A eval.	0.6%	0.6%
Non-linearity	all doses 1 Gy	0.05%	0.05%
Fading	t < 3 days	0.10%	0.10%

Table 3. Uncertainty budget for the absorbed dose measurement with TLD. The contributions are given at the level of one standard uncertainty.

Dosimetry protocol

All participants carried out the reference dosimetry using the SSRMP recommendations No. 8 and No. 10, or the IAEA TRS-398 protocol, with the exception of the CyberKnife (TRS-483), the Radixact and a linac dedicated to total body irradiation.

Reference dosimetry for FFF beams

The participants were asked if they corrected the dosimeter value for the effect of volume averaging during the reference dosimetry at the beam commissioning. According to IAEA TRS-483 protocol, the corrections to apply for FFF beams include in fact two contributions: the correction factor for the difference in water to air stopping-power ratio and the volume averaging correction factor. Two participants applied such corrections for a conventional linac and for a PTW 30013 chamber. The reported first correction factor amounts to 0.999 for 6XFFF and to 0.997 for 10XFFF beams, and the second one amounts to 1.0016 and 1.0038 (mean values). For a CyberKnife, a participant reported correction factors of 0.998 and 1.010 respectively. One can see that these two corrections almost cancel out.

4. Discussion and conclusion

The dosimetry of 157 beams has been checked. The results of the 2022 TLD dosimetry intercomparison are good.

For photon beams, all the checked beams met the satisfactory criterion of $\pm 4\%$. In addition, 80% of the beams were within $\pm 2\%$.

For electron beams, only one was beyond the criterion of $\pm 6\%$. It was recommended that the dosimetry be verified with the reference dosimeter. The check did not reveal any errors. Then a repetition of the TLD measurement showed a better agreement, within $\pm 6\%$.

We thank all the medical physicists for their participation and for their excellent collaboration.

Thierry Buchillier and Claude Bailat
CHUV - Institut de radiophysique (IRA)
Rue du Grand-Pré 1
1007 Lausanne

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SSRMP Research Grant 2023

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 promoted by at least 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 2023.

Proposals should not exceed four A4 pages and should contain:

- project title, duration and financial request
- 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 (mjaccard@genolier.net).

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Varian Award for Radiation Oncology of SSRMP 2023

Deadline for submission: March 31st 2023

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 with at least one 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. The winner gets the prize amount, as well as a diploma with an appreciation.
4. 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.
5. 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.
6. The prize committee constitutes itself. The decision of award together with the appreciation should be sent to the board for approval.
7. 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.
8. This regulation was accepted by Varian Medical Systems Inc. (Switzerland) September 27th, 2006 and renewed by the annual assembly of SSRMP September 27th, 2007. It can be changed only with the approval of Varian Medical Systems by a decision of the annual assembly of SSRMP.

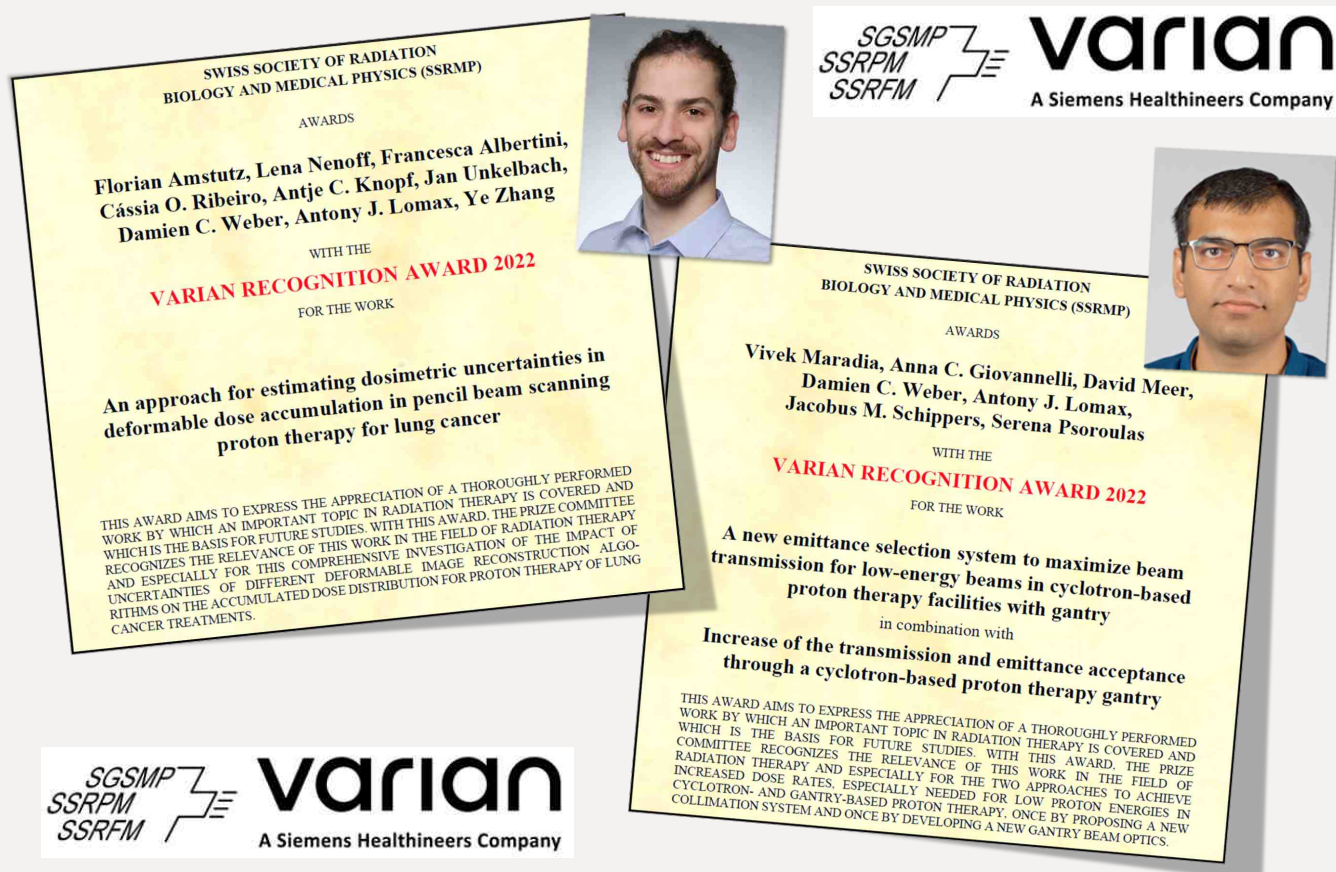
Note that there will be an award ceremony during the general assembly in 2023 and a publication of the Varian prize recipients is then taking place in the SSRMP bulletin and on the SSRMP website.

Maud Jaccard
Clinique de Genolier - Genolier
President of the Varian Prize Committee 2023

SCIENCE

Varian Award 2022

At the general assembly on October 27, 2022, two publications were awarded with the **Varian Recognition Award of Radiation Oncology** of SSRMP:

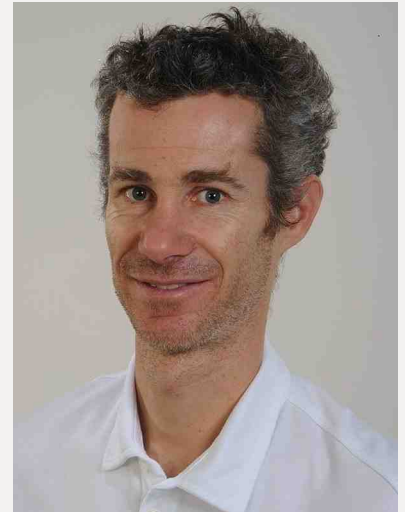


We congratulate the winners and thank them for the important work. In addition, we thank Varian Medical Systems for their support.

Raphaël Moeckli
IRA, Lausanne
President of the Varian Prize Committee 2022

EDUCATION

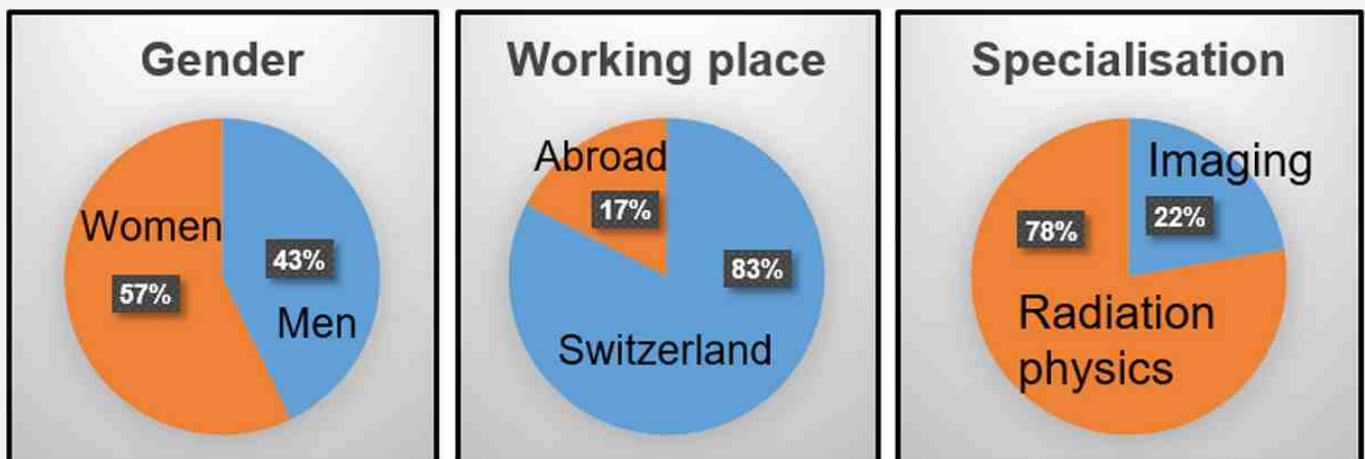
Education Committee Annual Report



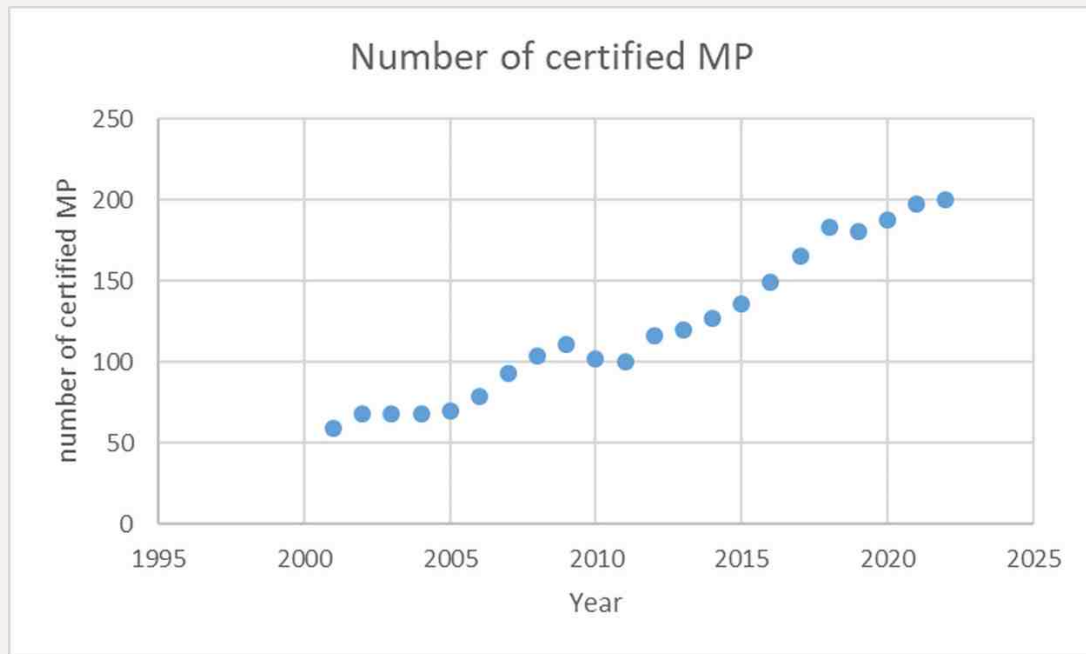
Dear colleagues,

in November 2021 nine candidates successfully passed the SSRMP certification exams in medical physics. We warmly welcome our new colleagues into our community. An additional 63 candidates are in the process of acquiring the SSRMP certification. The gender and working place, as well as the specialization of the candidates are described in the diagrams below.

In 2022, two clinical education courses for medical physics trainees were organized. The first education course was held virtually and the topic was *head and neck tumors; bone and liver metastases*. The second course covered the topics of *gynecological tumors and breast cancer*, and was held in person in Bern. Participation is highly encouraged, even if not mandatory for future certified medical physicists. More than 30 candidates attended the two clinical education courses. A great



EDUCATION



thank goes to Frank Zimmermann who organized these lectures and to all the speakers.

Candidates for certification registered after 1 July 2020 will be required to complete a third week of training in radiation protection. This is valid for physicists following the specialization in *medical radiation physics*, as well as for those following the specialization in *medical imaging*. Information about this training is described in [Annex 2](#) of the SSRMP guidelines for acquiring the certification. At the end of this training, the candidate will have to send a report to the education commission and will receive a certificate which attests to the completion of this training.

Five certified medical physicists retired or did not wish to renew their certificate. This brings the number of Swiss certified medical physicists to 200. This number has increased steadily over the last 20 years.

The Education Committee started to update and translate into English the annex II: *Stoffkatalog* as well as the annex IV: *Pruefungsreglement / Règlement d'examen*. We hope to finish reviewing these documents by spring 2023.

Finally, I would like to thank all the people from the committee, Maria Mania Aspradakis, Frédéric Corminboeuf, Stephan Klöck, Götz Kohler, Angelika Pfäfflin, Regina Seiler and Valéry Zilio who helped me with all the tasks related to the education committee.

On behalf of the education committee,

Jérôme Kraysenbühl

EDUCATION

Results of the Certification Exams in Medical Physics (SSRMP)

In the exams for the certification in medical physics SSRMP 2022 (24.10. - 04.11.), the following 17 colleagues succeeded (6 with a certificate in medical imaging):



Upper row, from left to right:

Jenny Bertholet, Bern (Inselspital)

Davide Cester, Zürich (USZ)

Jonas Ekeberg, Zürich (USZ)

Zaira Girbau Garcia

Tanja Hertel, St. Gallen (Kantonsspital)

Klaudia Krzekotowska, Bellinzona (EOC)

Yolande Petegnief, Sion (Hôpital du Valais)

Sandra Strohmeier, Sion (Hôpital du Valais)

Lower row, from left to right:

Khatanbold Altangerel, Mainz DE

Sofia Celi, Aarau (Kantonsspital)

Muriel Dorthe

Jonathan Farr, Meyrin (A.D.A.M. SA)

Milena Cristina Gravinatti, Zürich (USZ) and Luzern (LUKS)

Elena Hofmann, Winterthur (Kantonsspital)

Thi Minh Hai Nguyen, Aarau (Kantonsspital)

Kuangyu Shi, Bern (Inselspital)

Christian Tata Zafarifety, Lausanne (Clinique de la Source)

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.

Stephan Klöck

Chair of the SSRMP exam committee

Bern, 07.11.2022.

Issues Of Interest

4th European Congress of Medical Physics Dublin, 17th-20th of August 2022

The 4th edition of the European congress of Medical Physics was organized face-to-face in Dublin. Parallel sessions in radiology, nuclear medicine and radiation therapy were held including refresher courses, scientific presentations and professional matters. Among the topics that were discussed in a quite animated session, it was that of cumulative dose in radiology.

Cumulative dose in radiology is practically the sum of the effective dose of examinations. As the number of radiological procedures is growing, patients receive more dose, which in its turn increases their risk of cancer. It refers to stochastic risks from radiation exposure and not tissue reactions such as radiation-induced skin burns and erythemas, for which it is known that radiation effects are cumulative over a period of a few months.

The first speaker David Robert Grimes in a very vivid manner addressed the importance of proper risk communication when it comes to radiation exposure. The second was Colin Walsh who described the cumulative dose problem from the gambler's fallacy prospective. It was actually very interesting talk explaining why we tend to believe that some particular event is less likely to happen in the future, if it already had happened few times in the past and vice versa. Read about this matter, if you are curious to challenge your human "inner belief" with raw facts and uncompromising statistics. Marco Brambilla the third speaker of this session spoke about the potentially high cumulative dose for chronic patients undergoing repeated imaging for both diagnostic and therapeutic purposes. The last two talks in the session were given by M. Mahesh (*AAPM Statement on Cumulative dose*) and M. Rehani (*Focus on patient safety*), continued with interesting debates between the two speakers.

The topic of cumulative dose is indeed of great interest. More and more people ask about the radiation exposure levels. Dose management systems collect radiation data from all examinations and can easily provide the cumulative dose, while their access is easy to physicians that may not even know the limitations of effective dose. On the same

time discussions on creating patient medical records that include all kind of procedures are on-going in different cantons in Switzerland; records that can also include cumulative doses and are open to family physicians and patients. However, many questions are still open: what exactly cumulative dose refers to? Is there really a cumulative effect for radiation when it comes to low doses? Is there a limit for cumulative dose and thus for a number of examinations? Should we take cumulative dose into account during the justification process? It is urgent that medical physicists be able to answer to these questions and more important to be able to discuss the impact with medical doctors.

Natalia Saltybaeva & Elina Samara
University Hospital Zürich



Enjoying Guinness in Dublin with Swiss colleagues

Issues Of Interest

SSRMP Continuous Education Day: AI in the field of Medical Physics

Bern, 28th of September 2022

This year's SSRMP Continuous Education Day took place at Lindenhof Hospital in Bern and was fully dedicated to the topic of Artificial Intelligence (AI) in medical physics. The participants were offered a balanced mix of introductory lectures, cutting edge research and industry talks. The day closed with a panel discussion. In the following account we will highlight some aspects that we found particularly interesting.

The day started off with an introduction to the fundamentals of Machine Learning by Gilmer Valdes from the University of California. From the basics of ML (spoiler alert: It is all statistics!), the day continued with a talk by Olga Levina (Technische Hochschule Brandenburg) focusing on issues like the following: if vendors present us with an oracular system, a black box containing the secret ML/AI algorithm, which questions do we need to ask in order to get a glimpse of what is happening within? And, if 10 million images were needed to train an AI to recognize a cat in an image, then how can we deal with minuscule training data sets in medical diagnosis? These questions were also expanded upon by Jonas Richiardi from CHUV who presented the ÉCLAIR

Guidelines which can help guide the evaluation of commercial AI solutions in radiology.

The vendor's session showed different aspects and developments from the industry perspective. Rolf Staehelin (MVISION) emphasized the slightly different approach of MVISION to AI: the quality goal for AI tools is oriented towards the standards set by international guidelines. This is an interesting departure from the expert knowledge based approach that is usually pursued in AI.

An important aspect for the industry is, of course, the certification of AI tools as medical devices, i.e. obtaining FDA or CE approval for a software product. Stefan Voser from Scan Diags AG gave an overview of the whole process from R&D to obtaining FDA clearance. From this talk, another interesting question came up: will the FDA disclose their risk analysis to the users of a product? Indeed, this would be crucial for users in order to be able to carry out their own risk analysis of the clinical workflow that includes the AI software. Unfortunately, no concluding answer to this could be found.



Issues Of Interest



Despite the cold and rainy weather the participants were happy to meet for this in-person event

In the afternoon, the talks were focused on current research in AI for radiation therapy and imaging. The third session of the day was kicked-off by Robert Poel (Inselspital, Bern University Hospital) with a presentation on robustness of automatic segmentation for treatment planning. He convincingly argued that standard metrics may not be able to say much about the robustness of the segmentation and even less about the impact of errors in the segmentation on the dose calculation. He therefore considered a kind of sensitivity analysis for the segmentation, which is then propagated to the dose calculation process in order to produce an error estimate for the treatment plan.

In the last session, Riccardo Dal Bello (USZ, UZH & ETH) presented his work on synthetic CT generation with AI. Together with automatic segmentation, MR-only radiotherapy is one of the holy grails of AI in medical physics. Interestingly, commercial products for generating synthetic CTs are already available for the brain, head & neck and pelvis. While the results of synthetic CT are spectacular, Riccardo Dal Bello pointed out also the open issues for a clinical implementation, first and foremost regarding guidelines and quality assurance.

In sum, the SSRMP Continuous Education Day gave a concise overview of current state of the art research of AI in medical physics without neglecting to highlight some of the challenges that widespread clinical implementation of AI faces. The key point that we took away from the presentations and discussions was that the whole clinical process needs to be considered for a safe and robust implementation of AI in clinical routine.

A fundamental question arose throughout the day: who is (or should be) responsible of checking, supervising and implementing these novel AI/ML systems? The answers to this question ranged from medical physicists to clinical machine learning specialists. While Gilmer Valdes envisioned a whole new profession that in the future will operate AI tools in clinics, we believe that for the moment it is important to keep up the discussion within the SSRMP in order to adequately react to the impact that AI will have on medical physics. More education on this topic is undoubtedly needed, and this Education Day was an excellent starting point for further discussion on these vast new topics.

Lorenzo Mercolli, Inselspital, Bern
Irina Kempf, UZH, Zürich

Issues Of Interest

55th SSRMP Annual Meeting

Thun, 27th -28th of October 2022

The “Thun SSRMP Annual Meeting” could finally take place this year, hosting the participants in a wonderful venue surrounded by the most popular mountains in Switzerland, shining white with fresh snow in the horizon.

The scientific program was definitely a most equilibrate mixture of dosimetry/treatment techniques, radiobiology, imaging and radiation protection, the former session starring Dynamic Trajectory RT (DTRT). DTRT refers to photon radiation therapy delivered with dynamic table and collimator rotations - on top of the gantry rotation - during Beam-On.

The group from Inselspital Bern uncovered for us how it works, how its advantage for OARs sparing has been dosimetrically investigated on some cases (HNC, breast, lungs), how successful dry-runs could be performed and how collisions are prevented by employing a in-house developed software able to predict collision zones for this

non-coplanar irradiation technique. All was covered by several different presentations spanned over the 2 days, each of them seemingly built on top of the other in a “... to be continued” kind of way. It almost felt like watching a TV series!

The enthusiasm and passion invested in this project and clearly displayed at the annual meeting by the Inselspital group are most enviable. Indeed, enthusiasm and optimistic vision for improvements can easily be forgotten during the daily routines. Thank you to this group of students, PhDs and post-docs for sharing theirs with us! We wish them good luck for the continuation of the project.

Among other presentations I enjoyed the one given by Sergejs Popovs (Klinik Hirslanden) about estimating the impact on the PTV margin sizes when implementing clinic-specific tolerance levels for stereotactic intracranial Radiosurgery and RT.



Issues Of Interest

To calculate PTV margins, the very well known formula of Van Herk (van Herk M, Int J Radiat Oncol Biol Phys. 2000 Jul 1) was used:

$$PTV_margin = \alpha \Sigma + \beta \sigma + \sigma_p$$

being Σ the systematic component and σ the random component.

The systematic component must account for:

- i) variance of MRI-CT images registration
- ii) GTV delineation errors
- iii) Tracking errors within a fraction, as measured in E2E tests
- iv) Intrafraction tracking errors.

Published data from Seravalli et al. were applied (Seravalli E, Radiother Oncol. 2015) for i and ii:

- $\Sigma_{MRI-CT} = 0.57, 0.33, 0.32$ mm (Inferior-Superior, Right-Left, Posterior-Anterior);
- $\Sigma_{GTV} = 0.29, 0.28, 0.3$ mm (IS, RL, PA)

Data from 26 E2E tests run with anthropomorphic head phantom and treatment log files from 91 SRS/SRT patients' fractions using fixed aperture conical collimator and a 70-



The legendary BELL in between the chairman of the session and the chair of the scientific committee

80% prescription isodose were analyzed to estimate elements iii and iv. The Root-Mean-Square (RMS) of the average errors of E2E resulted to be: 0.27, 0.24, 0.16 mm in IS, RL and AP, respectively.

As for the intrafractional errors, the treatment fraction data of minifractions (mFx) between consecutive image acquisitions were analysed, defining the errors as difference between targeting coordinates of each pair of consecutive



Music band playing traditional instruments.

Issues Of Interest

mFx within each Fx. The RMS of each fraction translational errors standard deviations were 0.07, 0.10, 0.10 mm in IS, RL and AP, respectively.

Based on the obtained data, the final safety margins for PTV were: 1.8 mm, 1.3 mm, and 1.2 mm in IS, RL and PA, respectively. These findings guaranteed a PTV volume reduction of 24% for 1.0 cm diameter spherical GTV, 14% for 2.0 cm diameter spherical GTV and 8% for 4.0 cm diameter spherical GTV.

I especially appreciated this presentation as it underlines the importance of using clinic and equipment specific data for safety margin determination in SRS/SRT. It's often hard to find the time to pursue big projects meanwhile being occupied in the clinic, but I found this particular kind of investigation worth the time and energy. Not only for potentially resulting in smaller irradiated brain volumes, but also for granting a more profound knowledge and control of the institution's accuracy in the overall process of delivering these high-dose treatments.

The last few words of this report should finally go to the general organization of the meeting which was really well done. Besides the splendid venue and well mixed program, Silvan Müller did a great job of keeping all speakers on a perfect time-schedule with his (now for me forever legendary) bell (see picture).

The social dinner was held in a fabulous castle on the lake and accompanied by traditional music and at least for me great company and conversation, despite not being able to attend the full event.

Francesca Belosi
University Hospital Zürich



View of the lake and the Berner Alps from the park surrounding the meeting venue



Riviera Chablais Hospital HRC



Radiation Oncology at Riviera Chablais Hospital

The Radiation Oncology department at Riviera Chablais Hospital (HRC) is a relatively young department founded in 2013 in the city of Vevey on the Swiss Riviera.

The department started with the installation of the first in the world Elekta linear accelerator (VersaHD™) equipped with Flattening Filter Free (FFF), which was announced at the 2nd ESTRO forum Geneva. The first employee of the department was the Chief medical physicist, Dr. Marc Pachoud, who performed the measurements and data collection, without even having a chair to sit on. Five months later, the second medical physicist, Dr. Sarah Ghandour, joined the team to start the clinical activity. During seven years, around 3000 patients were treated. One challenge of this new

department was to be completely paperless with the idea to be more efficient and innovative, which was not widespread at that time. We have also decided to choose RayStation™ as treatment planning system (TPS). In 2013, it was a challenge as no department around the world was using that TPS as sole treatment planning system. Looking back, we don't regret that risky choice.

To improve patient care in the oncology field, in 2018 we have started to share our Electronic Medical Record with the oncology department. The chosen software was the one used as Record and Verify System (R&V), MosaiQ. It was a big challenge for the IT department but also for us as medical physicists with the expertise of using that kind of software. Nowadays, each patient entering in the cancer center shares a common electronic folder between oncology and radiotherapy. Following that experience, we are convinced that physicists have an expertise to share with other specialists in this area.



From left to right: Marc Pachoud, Sarah Gandhour, Olivier Pisaturo

In 2019, Hôpital Riviera-Chablais regrouped his 6 different sites located in different regions between canton Vaud and Valais into one big facility located in Rennaz. The location, on the end of the Léman, was chosen to ensure optimal health care for the border residents of the cantons of Vaud and Valais. At this occasion, the third medical physicist, Dr. Olivier Pisaturo, joined the team to install the first and unique Elekta MR-Linac 1.5T in Switzerland at the time this article is written. Dr. Marc Pachoud became Head of department, along with Dr. Thomas Breuneval.

Spotlight On



The move to Rennaz was a big challenge for the physicists, because they had to ensure the transfer of more than 45 patients on treatment from Vevey to Rennaz, without interruption. The commissioning of the MR-Linac was also a new challenging experience, especially the absolute dosimetry measurements, due to the magnetic field impact on charged particles. The second challenge was to determine correction factors that we have to apply on ionizing chambers for absolute dosimetry in a magnetic field. It was an exciting experience for us as physicists.

Our team consists of 3 medical physicists, 4 radiation oncologists, 8 RTTs, 3 nurses, and 3 secretaries (not all are full time employed). Our philosophy is that every physicist/RTT can do everything, but at the same time has topics where he/she is specialized in.

Marc Pachoud, Sarah Ghandour, Olivier Pisaturo
Riviera Chablais Hospital



The physics team with Dr. Thomas Breuneval and the radio-oncology team

“Welcome!”

Klara Uher



I was born and raised in the beautiful city of Vienna. After completing my bachelor in physics at the University of Vienna, I took a gap year in which I traveled and gained work experience.

It was after my year of traveling and working that my adventure in Switzerland began. ETH and its master in physics program brought me to Zürich. Because of the various medical physics lectures, I fell in love with this exciting part of applied physics. I finished my master thesis in the field of medical physics and waited patiently for the first COVID lockdown to be over.

At the beginning of August 2020, I started working as a medical physicist in training at University Hospital Zürich. Working right in front of the main building of ETH made me miss studying and university life so much that I enrolled in the MAS in Medical Physics program. Once again, I was back at ETH and studying...

During my first two years at USZ, I had the pleasure to work with an amazing team. Alongside my colleagues, I had the chance to assist in the expansion of the Brachytherapy program at USZ. For two months this autumn, I experienced the HDR practice at AKH, in my hometown Vienna. Seeing the differences between the two institutions and sharing knowledge with colleagues showed me once again how great the medical physics society is.

Alongside HDR, I assist the USZ team in the quality assurance program while still learning the different tasks a medical physicist is performing during clinical practice.

I am very pleased to report that I successfully graduated from the MAS program this semester! Therefore, I am very much looking forward to my first winter season in Switzerland freed from studying. Although coming from Austria, where skiing is also somewhat a national sport, I got to experience a whole other level of skiing in Switzerland. There will barely be a weekend, where one cannot find me on the slope.

However, my “study-free” time will last only shortly as I am planning to attend the exam to become a certified medical physicist in November 2023.

Klara Uher
University Hospital Zürich

“Welcome!”

Nicholas Perichon

I was born and grew up in Rennes (Brittany). I moved to Strasbourg for my physics engineering studies and discovered medical physics there. After my Engineering cursus I did a Master's degree in Medical Physics and a PhD at the Université Paris Saclay. I then followed the French medical physics training (DQPRM) with a residency at the Hopital Saint-Louis (Paris) and a first experience in radiotherapy at the Hopital Europeen Georges Pompidou (Paris). After two years in Paris, I applied for a medical physicist job in Rennes to go back home. I worked there in the radiotherapy service of the Cancer comprehensive Center for seven years.

In 2020, in the context of the new radio-oncology service at Clinique Générale Beaulieu and the Genolier Innovation Hub, Swiss Medical Network advertised for a medical physicist and I decided to apply, motivated by these very exciting projects! I was really glad to be recruited and joined the team in April 2021. The first months were dedicated to Cyberknife commissioning and the setup of the new department in Geneva. It's not easy to arrive in a new environment and start new challenges, I was welcomed by a really caring team. My family joined me during the summer and they were quickly conquered by the magnificent landscapes of Switzerland without forgetting the rösti, the fondue and the fillets of perch from the lake... ;-)

In April 2022, I passed the IRA radiation protection exam which allowed me to obtain the SSRPM certification. I am so proud to just become a new SSRMP member in past October, thank you! I am delighted to be part of this team and to participate in all these amazing projects. I already had the occasion to meet some of you at conferences and for training and I look forward to meeting you soon during next meetings.



Nicholas Perichon
Swiss Medical Network

Editorial staff and Information

Impressum

Bulletin editors

bulletin@ssrpm.ch

Davide Cester
Inst. für Diagn. und Int. Radiologie
UniversitätsSpital Zürich (USZ)
Rämistrasse 100
8091 Zürich

Marie Fargier-Voiron
Clinique de Genolier
Route du Muids 3
1272 Genolier

SSRMP Secretary

Roman Menz
Radiologische Physik
Universitätsspital Basel
Petersgraben 4
4031 Basel
roman.menz@usb.ch

Website editors

webmaster@ssrpm.ch

Anisoara Socoliuc Toquant
Hôpital de La Tour
Av. J.-D.-Maillard 3
1217 Meyrin

Lotte Wilke
Klinik für Radio-Onkologie
UniversitätsSpital Zürich (USZ)
Rämistrasse 100
8091 Zürich

Publisher

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www.ssrpm.ch

Head editor

yvonne.kaeser@physmed.ch

Yvonne Käser
PhysMed Consulting GmbH
Kleindorfstrasse 12a
8707 Uetikon a. S.
079 453 99 02

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Pomonastrasse 12
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www.mengisgruppe.ch

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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
Photos
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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.)

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Deadline for submissions to Bulletin No. 105 (01/2023): March 17th, 2023

SSRMP Board

Board members

PhD	Marta Sans Merce President marta.sansmerce@hcuge.ch	Hôpitaux Universitaires de Genève Département diagnostique Service de Radiologie Rue Gabrielle-Perret-Gentil 4 CH-1205 Genève	079 553 35 06
MSc.	Yvonne Käser Chair Professional Affairs yvonne.kaeser@physmed.ch	PhysMed Consulting GmbH Kleindorfstrasse 12a 8707 Uetikon a. S.	079 453 99 02
PhD	Maud Jaccard Chair Science Committee mjaccard@genolier.net	Clinique de Genolier, Route du Muids 3 1272 Genolier Clinique Générale-Beaulieu Chemin de Beau-Soleil 20 1206 Genève	079 207 49 72
Dr. sc. nat.	Jérôme Krayenbühl Chair Education Committee jerome.krayenbuehl@usz.ch	Klinik für Radio-Onkologie Universitätsspital Zürich Rämistrasse 100 8091 Zürich	044 255 32 49
Dr. phil. II.	Roman Menz Secretary roman.menz@usb.ch	Radiologische Physik Universitätsspital Basel Petersgraben 4 4031 Basel	061 328 73 14
MSc.	Regina Seiler Treasurer regina.seiler@luks.ch	Radio-Onkologie Luzerner Kantonsspital Spitalstrasse 6000 Luzern 16	041 205 58 07 041 205 58 11
Prof.	Michael Fix michael.fix@insel.ch	Abteilung für Medizinische Strahlenphysik Inselspital - Universität Bern 3010 Bern	031 632 21 19 031 632 24 29 031 632 21 11 031 632 26 76
Dr. sc. nat.	Stefano Gianolini stefano.gianolini@hirslanden.ch	Hirslanden AG Corporate Office Boulevard Lilienthal 2 8152 Glattpark	044 388 63 80 076 747 00 72
PhD	Margherita Casiraghi margherita.casiraghi@eoc.ch	Servizio di Fisica Medica, Istituto Imaging della Svizzera Italiana Ente Ospedaliero Cantonale CH-6500 Bellinzona	091 811 8530
PhD	Thiago VM Lima thiago.lima@luks.ch	Radiologie und Nuklearmedizin, Luzerner Kantonsspital, Spitalstrasse 16 CH-6000 Luzern	041 205 63 78
PhD	Véronique Vallet veronique.vallet@chuv.ch	Institut de Radiophysique Rue du Grand-Pré 11007 Lausanne	079 556 02 08

Conference Calendar

CALENDAR 2023

January 15 Bad Zurzach	PSI Winter School for Proton Therapy 2023 Jan 15 - Jan 20 https://indico.psi.ch/event/13263/
February 19 San Diego, CA	SPIE Medical Imaging 2023 Feb 19 - Feb 23 https://spie.org/conferences-and-exhibitions/medical-imaging
March 1 Wien, AT	ECR2023 - European Congress of Radiology Mar 01 - Mar 05 https://www.myesr.org/congress
April 23 Schladming, AT	Winterschule Pichl für Medizinische Physik Apr 23 - May 05 https://www.winterschule-pichl.de/
May 12 Wien, AT	ESTRO 2023 May 12 - May 16 https://www.estro.org/Congresses/ESTRO-2023
June 22 Davos	SCR '23 - Swiss Congress of Radiology Jun 22 - Jun 24 https://congress.sgr-ssr.ch/
June 26 Paris, FR	14 th Conference on Monte Carlo Methods and Applications Jun 26 - Jun 30 https://mcm2023.sciencesconf.org/
July 23 Houston, TX	AAPM Annual Meeting 2023 Jul 23 - Jul 27 https://www.aapm.org/meetings/
September 18 Salzburg, AT	54. Jahrestagung des FS Sep 18 - Sep 22 https://www.fs-ev.org/der-fs/veranstaltungen-des-fs/
Nov 26 Chicago, IL	RSNA Annual meeting Nov 26 - Nov 30 https://www.rsna.org/annual-meeting/future-and-past-meetings



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!