

BULLETIN

January 2024



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Cover: *Le Muse Inquietanti (The Unsettling Muses)*, 1918
a metaphysical painting by Giorgio de Chirico
(Milan, private collection)

Letter from the Editors



Dear colleagues,

First of all, it is with great pleasure that we wish you a happy new year 2024! After a rainy November and a snowy start to the SSRMP Congress, December flew by with the usual Advent calendar countdown and end-of-year festive season.

And now it's January 2024, with maybe new resolutions... and a new Bulletin! We hope you did not miss reading it too much in December. Our aim was not to increase the suspense, we promise :-). We have decided to shift the Bulletin's publication schedule just a little. For professional reasons first, the SSRMP Congress took place at the end of November/beginning of December in 2023, so we preferred to have time to integrate the reports from the various boards into a timely edition. For slightly more personal reasons too, we have to admit. Between work and Christmas preparations at home, December does not really have 31 days! We are thinking of permanently adjusting the publishing schedule, and the next issue is currently scheduled for May instead of the usual April.

In this edition, so, you will find reports from the different committees. After the letter of our president Marta Sans Merce, you can read all about the Professional Affairs committee's latest news followed by the results of the latest salary survey carried out by this committee. The announcements of the research grant 2023 and the Varian award follow the Science Committee report. Finally, we would like to congratulate the new physicists certified in 2023!

In the Issues of Interest section, you can read some articles about events that took place this autumn and early winter. The "Spotlight On" article is back in this edition, with a trip to Ticino, followed by the introduction of two of our newly certified colleagues in the "Personalia" section. In the end, to keep you busy until May, a new puzzle together with the solution of the previous one.

We wish you a pleasant reading and a nice start into the new year!

Davide & Marie

PRESIDENT'S ANNUAL REPORT



Dear colleagues,

already one year has passed since I started as SSRMP president, and I have to say that I'm still amazed of how many things are going on in our society. It is an honor for me to be the president of this very active society.

Recently, I had the pleasure to attend this year's SSRMP Annual Congress in beautiful Lucerne. The meeting took place in the Verkehrshaus. From the organizational point of view of the congress, everything ran very smoothly and without any

problems thanks to the great organization of Regina Seiler, Thiago Lima and their colleagues. I take this opportunity to thank them again for the very nice work they did.

Our sponsors were there to expose their products and to exchange with all of us. I would like to express my gratitude to them too, thank you for your contribution! And not only the organization was successful, but also the social part was very nicely planned. We profited from a fantastic visit to the planetarium for a very interesting and enlightening movie about the dark matter.



PRESIDENT'S ANNUAL REPORT



After the visit, a magic and delicious dinner took place Thursday evening on the Wilhelm Tell restaurant ship with very nice food, wine and company.

From the scientific part, during the congress we were delighted to listen to very nice presentations from all medical physics fields of expertise: radiation therapy but also nuclear medicine, X-ray imaging and radiation protection. Presentations were not only given by senior physicists but also many were given by our young colleagues, thanks to them for their participation!

From my side, I must admit that the end of the year is always complicated, but this annual meeting brought a nice pause in this crazy period.

On the afternoon of the first day of the congress the General Assembly (GA) took place. During the assembly, we could bring to you the majority of what has happened during this year within our society. I described to you our work within the board, that in 2023 we held 6 board meetings either online or in person and that, as in previous years, many different topics were discussed.

These topics can be summarized as follows:

- Two AMP meetings
- SSRMP continuous education day
- Support of SSRMP working groups
- Discussions with and related to FOPH
- Collaboration with other societies
- Research grant
- Varian prize
- Annual meeting
- Preparation next AM that will be part of the Tri-nations conference in combination with EFOMP congress in Munich

During the GA you also heard the ongoing or just finished activities of the different permanent committees. Let me take this opportunity to thank



PRESIDENT'S ANNUAL REPORT

all the members of our three permanent committees. Thanks also to all members involved in the working groups, they do provide interesting results for our community, results that all the members can benefit, so thank you!

As always there have been lots of exchanges with other professional societies thanks to our delegates.

But our society is not only science, education, professional affairs, but also finances. Thanks to our treasurer Regina Seiler as well as the auditors Sairos Safai and Pierre-Alain Tercier for their work.

Another very interesting event took place in October, the SSRMP-SASRO Continuous Education day. The 27th of October at Inselspital in Bern, Jenny Bertholet, Cristian Fernandez and Michael Fix and colleagues organized a continuous education day on the topic: “*Potential*

and Future of Spatially Fractionated Radiotherapy”. The course, co-organized together with SASRO, was followed by 65 professionals. Excellent speakers led the course with very meaningful setup. Very nice feedback was received from the attendees.

There are many conferences available for all specializations in medical physics including international, but also national like our SASRO annual meeting and the SCR'23 that took place in Davos from 22 till 24 June 23. We provided very good ideas for the congress and our input is very much appreciated. During the SCR'23, we had common sessions with the other professional societies involved in imaging in Switzerland: SGNM, SGR and SVMTRA.

We will continue to be present in the next congress SCR'24 that will take place in Geneva from the 20th till the 22nd of June 2024.



PRESIDENT'S ANNUAL REPORT



Concerning the congress preparation, we have again participated in the scientific committee meetings and proposed interesting topics. Now we need you to actively contribute to the congress, so I hope to see you there!

Another date to add to your calendar is from the 11th till the 14th of September in Munich for the upcoming tri-nations conference, held in conjunction with the European Conference of Medical Physics 2024. This co-organized congress can take place thanks to Michael Fix for his extensive discussions with our German and Austrian partner societies, the DGMP and ÖGMP.

Before finishing this report let me thank all the board members for their work as well as for their time since our board meetings are always long, sorry... Yes, as I said, many things are ongoing that need also to be discussed within our board. Thank you also to all of you for your support. Last but not least, there are many more who served our society and do a great job! Unfortunately, I don't always mention them - or not at every report - but please feel addressed by my BIG thank you!!!

As I always say to you during our meeting, don't forget to get in contact with the board for any kind of suggestion.

I hope you had a nice Christmas period and that you have started the year full of energy.
Looking forward to meeting you soon again!

Marta Sans Merce
SSRMP president

Professional Affairs Committee Annual Report



After having been in the board of SGSMP for 6 years it seemed time to take over some additional responsibilities in our society and so I confirmed my candidature for the position of chair of the professional committee. Thank you for voting for me and trusting me with this responsibility.

Taking over the position from Jean-Yves Ray was stepping into big shoes – he was leading this committee with so much experience and competence that I was quite a bit intimidated. Thank you very much Jean-Yves for taking care of all those important tasks for so many years! Luckily, again thanks to the intense work of the whole committee and Jean-Yves especially, many things are already prepared and running:

- Stefano Gianolini and Roman Menz continue their commitment in the committee and thus are able to provide us all with lots of experience, as
- Stefano took over the task of taking administrative care of our digital platforms – thank you very much for this time consuming work!
- The new editorial team with Davide Cester and Marie Fargier-Voirion took over the preparation of our Bulletin from their predecessors. Together they prepared and published their first three editions of the bulletin – at least in my opinion they were very nice issues and there were a lot of new ideas put into place. Thank you two very much!

- Lotte Wilke and Anisoara Socoliuc Toquant took over all duties on our webpage and digital member communication channels: putting new information on the website, updating our calendar with new events, publishing job offers and very importantly keeping us all up to date on all the different things happening in the field with regular Newsletters and biweekly information. Whenever pressing information has to be shared with our community, they do find the flexibility to just squish another newsletter out of their time. Thank you very much for your efforts and flexibility.

The last year was dominated by finding our ways as a new team. Nevertheless, a bunch of actions and projects were conducted also during this last year:

- Additional organization has happened in the structure of email-forwarding. We have now several addresses in use also for all our members to help communication with the board and the persons responsible for different tasks. For all mail addresses also the German (...@sgsmp.ch) and French (...@ssrpm.ch) versions are in use, but we would like to promote the English version with ...@ssrmp.ch. I would like to particularly point out a few new addresses:

board@ssrmp.ch

webmaster@ssrmp.ch

bulletin@ssrmp.ch

(see also the box in the next page)

PROFESSIONAL AFFAIRS

- Some updating has happened on the digital platforms as different tools started to be outdated and needed upgrades to newer versions. This is always connected with some compatibility problems. As you probably have noticed, we had to change our Calendar-App due to this and all events had to be manually copied into the new app. Hopefully not too much was forgotten.
- On the digital platform, the basis for our new members database was prepared. The database is being installed during the next few weeks.
- Since the 2022 general assembly, 17 newsletters and 15 biweekly communications were sent out to our members. It is sometimes a challenge to find the balance between informing all our members with accurate and up to date information while not bombarding them with too many e-mails.
- Three very nice issues of the bulletin were published, the next volume for January 2024 is already in preparation and will be filled with a lot of information from this general assembly as well as valuable contributions from our members.
- As announced in the annual report from 2022, a new salary survey has been conducted during October and November 2023 and will be published in the Intranet

during the next weeks. You also find a summary of the report in this bulletin on the next pages.. With the change of some of the questions, we will gain interesting information - the preliminary results look very promising.

- The paper archives that have accumulated over many years and many different boards have been collected together and are currently being digitized.
- The committee supports and collaborates 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.

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 30th, 2023

board@ssrmp.ch	Direct communication channel to the board
webmaster@ssrmp.ch	Requests for: <ul style="list-style-type: none"> • Job announcements • Website announcements • Events • Calendar additions • Newsletters • Biweekly information
bulletin@ssrmp.ch	Please help keeping the bulletin interesting! <ul style="list-style-type: none"> • Article propositions • Announcements for the Bulletin • Articles on events • New ideas

Results of the 2023 Salary Survey

In October and November 2023 the Committee for Professional Affairs conducted a web-based salary survey, similar to the previous surveys in 2020 and 2017. Here, only a short summary is given. The detailed report is published for SSRMP members on the intranet of the SSRMP homepage.

The target group of the survey were medical physicists working in Switzerland, with a main focus on the clinical framework and the period of interest was the year 2022.

The questionnaire included four different sections:

- **Education Information**, including questions on the academical education, certification in medical physics and professional experience.
- **Employment Information**, including questions on employment sector, primary discipline, contract

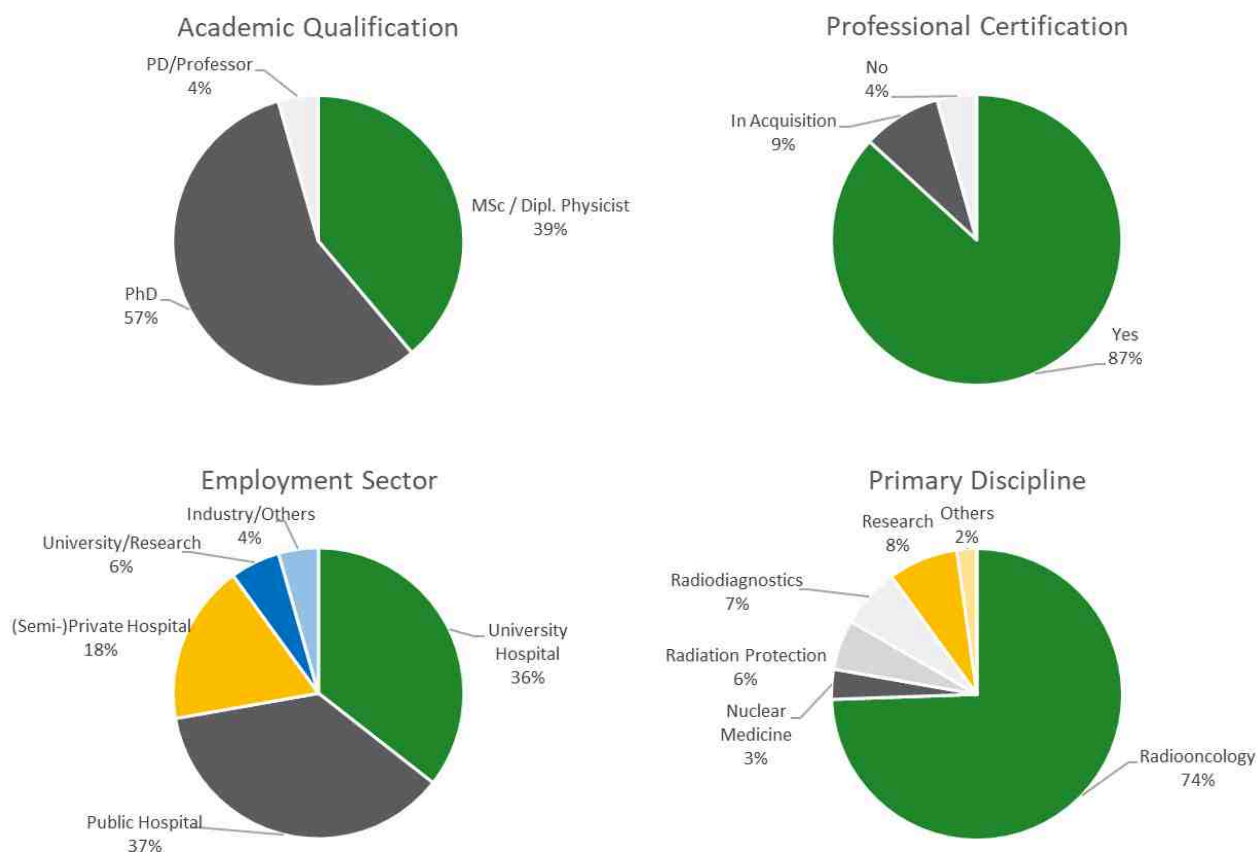
arrangements and position inside the department.

- **Employment Conditions**, including questions on weekly working hours, overtime, days spent on continuous education.
- **Salary Information**, including questions on yearly salary, compensation for overtime, employer contribution for continuous education expenses, bonuses, and additional income and finally on satisfaction with the current salary situation.

The invitation to the survey was sent out to our members by email in early October 2023 and reminders were sent out before the survey was closed. The total number of participants was 93, of those 3 were excluded from the analysis due to unrealistic answers in the salary section.

Participant statistics

From the answers we see that the typical medical physicist has at least a master's degree and a professional certification, works in radiooncology in either a university or public hospital and works with a pensum of at least 80% in a permanent position.

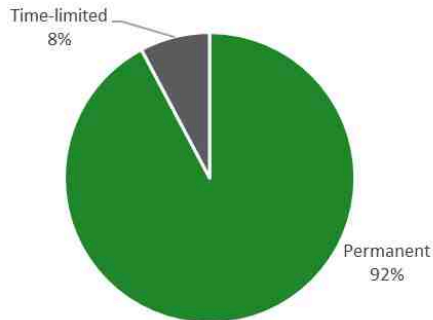


PROFESSIONAL AFFAIRS

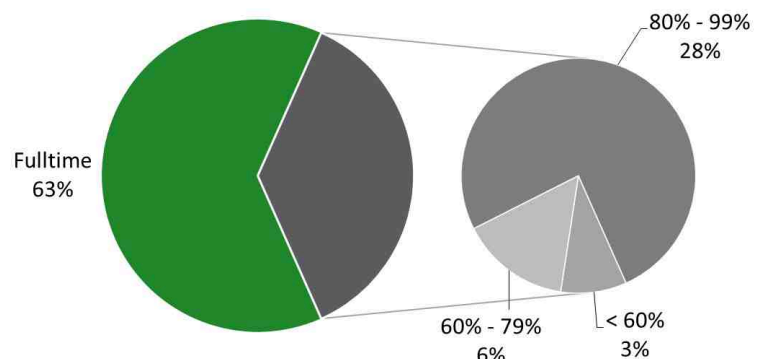
Employment conditions

The typical medical physicist works between 40 and 45 hours per week, with no more than 4 hours weekly overtime that is in one or the other way compensated. Yearly vacation ranges from 20 - 30 days. Medical physicists participate actively in continuous education and get compensated for this by their employers.

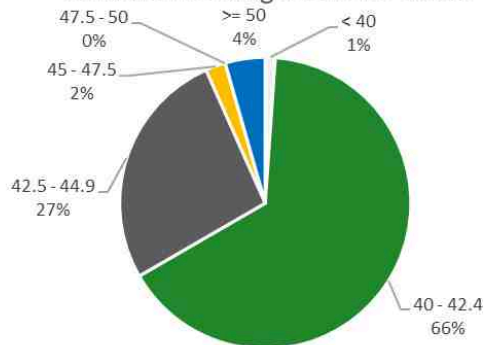
Contract Arrangement



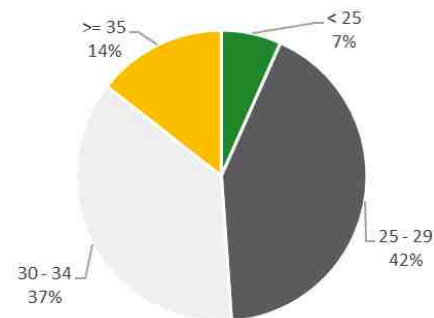
Employment Degree



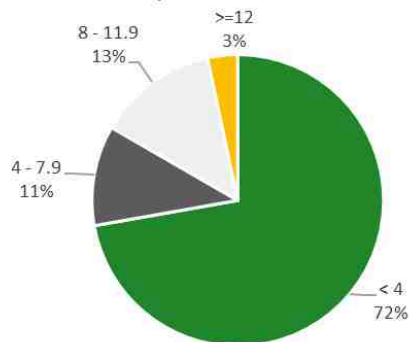
Contract Working Hours for 100%



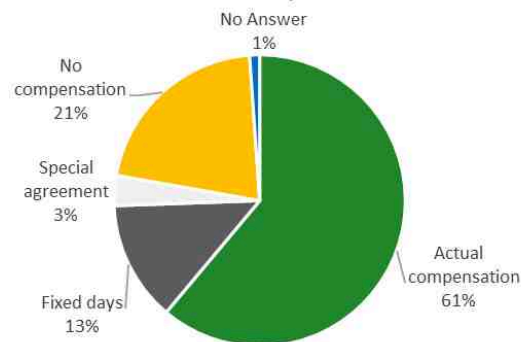
Yearly Vacation Days



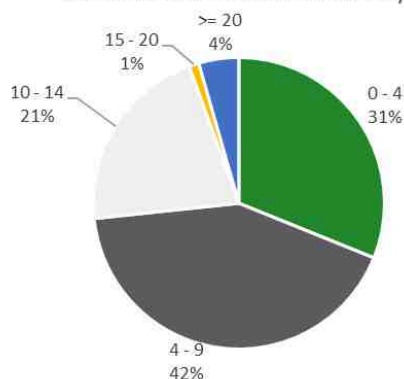
Weekly Overtime in Hours



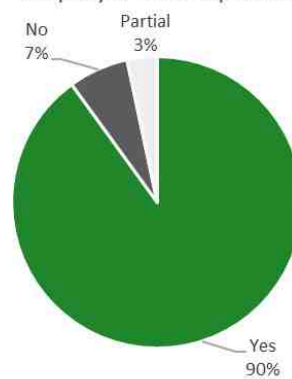
Overtime Compensation



Continuous Education in Days



Employer Participation

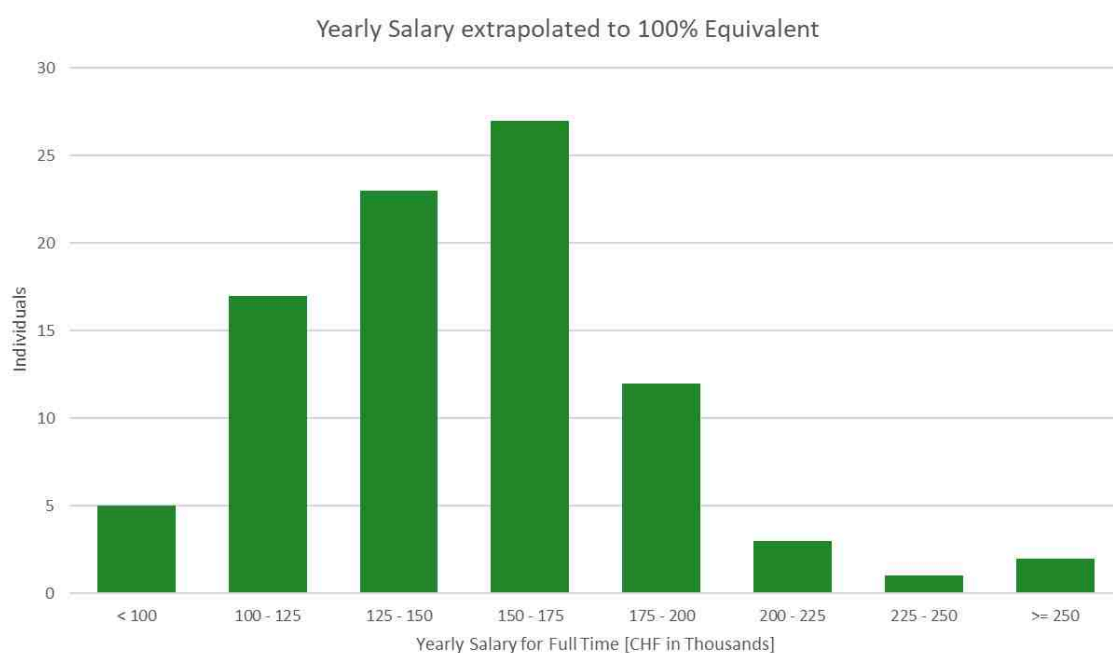


PROFESSIONAL AFFAIRS

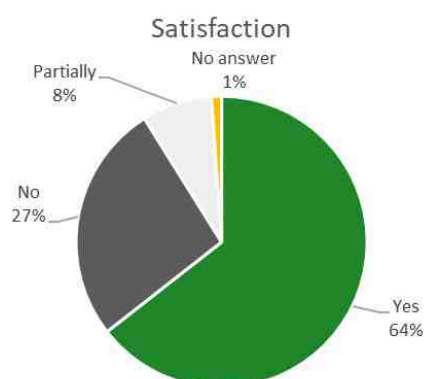
Salary situation

For analysis the salary indicated in the questionnaire was divided by the indicated employment degree, thus resulting in a 100%-equivalent salary. Compared to the results from the previous surveys the mean and median salary have clearly increased. This might be partly due to the change in practice with bonuses being included in the salary.

	Salary for Full Time in CHF		
	Current Survey	Survey 2020	Survey 2017
Mean	149'357	139'004	137'008
Median	148'500	137'100	130'000
25%	125'000	115'347	117'750
75%	170'000	157'350	156'063



While most participants are quite happy with their situation, around one third is not satisfied – they certainly get some additional information from the complete report that is available on the [SSRMP intranet](#) [1].



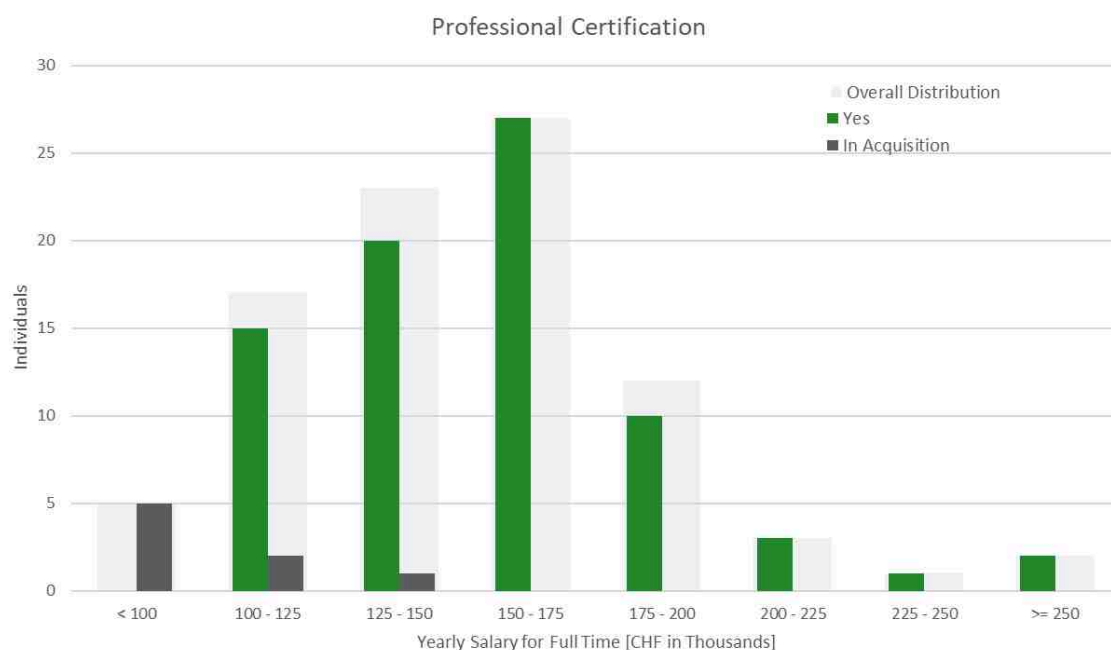
PROFESSIONAL AFFAIRS

In addition to the overall statistics, we also try to give some insights into different subgroups and their salary situation. This will hopefully help our members in assessing their own situation. Here only two examples, many other aspects are shown in detail in the full report.

Salary is clearly rising once a professional certification has been acquired:



An increase in salary is also observed with longer experience:



The full report on the Salary Survey 2023 will be available on our website: <https://ssrpm.ch/intranet/>

The professional committee

Science Committee Annual Report



Dear colleagues,

The members of the **scientific committee** are Mania Aspridakis, Thomas Buchsbaum, Margherita Casiraghi, Sarah Ghandour, Peter Manser, Raphaël Moeckli, Stephanie Tanadini-Lang, Anaïs Viry and myself.

The **working groups** (WG) of the society were very active this year. Three new WG were launched in 2023.

First, the *Fluoroscopy classification* WG chaired by Marie Nowak was born. Its goal is to classify the fluoroscopy procedures as a function of the effective dose range, in order to determine the needed involvement of medical physicist according to the radiological protection ordinance Art.36.

The second newly formed WG, *Cumulative dose*, is chaired by Elina Samara and aims to propose a position statement from SSRMP about the correct use of the cumulative effective dose prior performing an X-ray examination. The WG submitted to the science committee a document endorsing the AAPM statement on that topic. This was reviewed by the committee and feedback was transmitted.

Margherita Casiraghi made an excellent job chairing the short-term WG on the *Radiation Protection Law ordinance*. Its task was to provide comments and remarks to the revision of the Radiation Protection Law of the 22.03.1991 by the Federal Department of Home Affairs.

Other active WG include *Quality control of Treatment Planning Systems* (D. Patin), whose purpose is to revise SSRMP Recommendation 7, *Role and tasks of MP in X-ray imaging* (D. Racine) working on a recommendation on the tasks of a MP working in X-ray to clarify its role as defined in ORaP Art.36, *Nuclear Medicine Physics Tasks* (T. Lima), that ambitions to establish a recommendation on the tasks of a MP working in nuclear medicine to improve quality and harmonize practices, *MR-only radiotherapy* (L. Milan), whose intention is to write a report with advices for safe implementation on MR-only workflow, *RPO2MPP* (P. Manser), working on the draft of Recommendation 17 about "Reporting Imaging Dose in Radiation Therapy" and *Stereotactic convergent beam irradiation* (A. Mack).

Of note the IGRT WG chaired by Jean-François Germond was closed end of 2022.

Do not hesitate to reach out to the chairs if you are interested to join a WG, or to the board if you wish to start a new one. All contributions are greatly appreciated!

Two **Applied Medical Physics (AMP) meetings** took place this year. As usual they started with a report of the President about the current topics of interest for the society and the board activities.

In December 2022, Thierry Buchillier presented the results of the 2022 TLD intercomparison, then the meeting was dedicated to clinical audits in radiotherapy and radiology with the experience sharing of auditors and auditees (Jörg Binder, Margherita Casiraghi, Marie Fargier-Voiron and Stephan Klöck). This triggered interesting discussions within the audience.

The SRS intercomparison project was presented during the second meeting in June 2023 by Sara Abdollahi, followed by reports of several WG chairs. Among others the results of two surveys were detailed including the tasks performed by MP in imaging, and the use of MR and MR-only workflow in Swiss Radiotherapy departments.

As in the previous years, the Institute of Radiation Physics in Lausanne was mandated by SSRMP to organize the annual **dosimetry intercomparison** for the gantry driven linacs. Thirty institutions participated, resulting in 145 beams checked (121 photon beams and 24 electron beams). All details of the results, which were globally good, can be found in the following pages of the bulletin.

The scientific committee evaluated one application that was received for the **Research Grant**. The proposal emanated from Florian Amstutz. It consisted in a survey about the use of deformable image registration in the Swiss Radiotherapy institutions and included a comparison of dose-accumulation for one specific application. The project received excellent reviews from the committee, thus the Research grant was awarded.

That's it for my report! This was my first year in this position and it has been very interesting and challenging. I would like to warmly **thank** the former chair Raphaël Moeckli for his advice, the members of the scientific committee, the chairs and members of the WG, Thierry Buchillier and Claude Bailat for their work for the TLD intercomparison, my colleagues of the board as well as all the speakers who participated to the AMP meetings.

Maud Jaccard
Chair of the Scientific Committee

Results of the TLD Intercomparison for Megavoltage Units 2023

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 2023 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 also, we focused on static photon and electron beams.

Thirty institutions took part to the 2023 intercomparison with a total of 145 beams checked, including 121 photon beams (60 beams with flattening filter (FF) and 61 flattening filter free beams (FFF)) and 24 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.

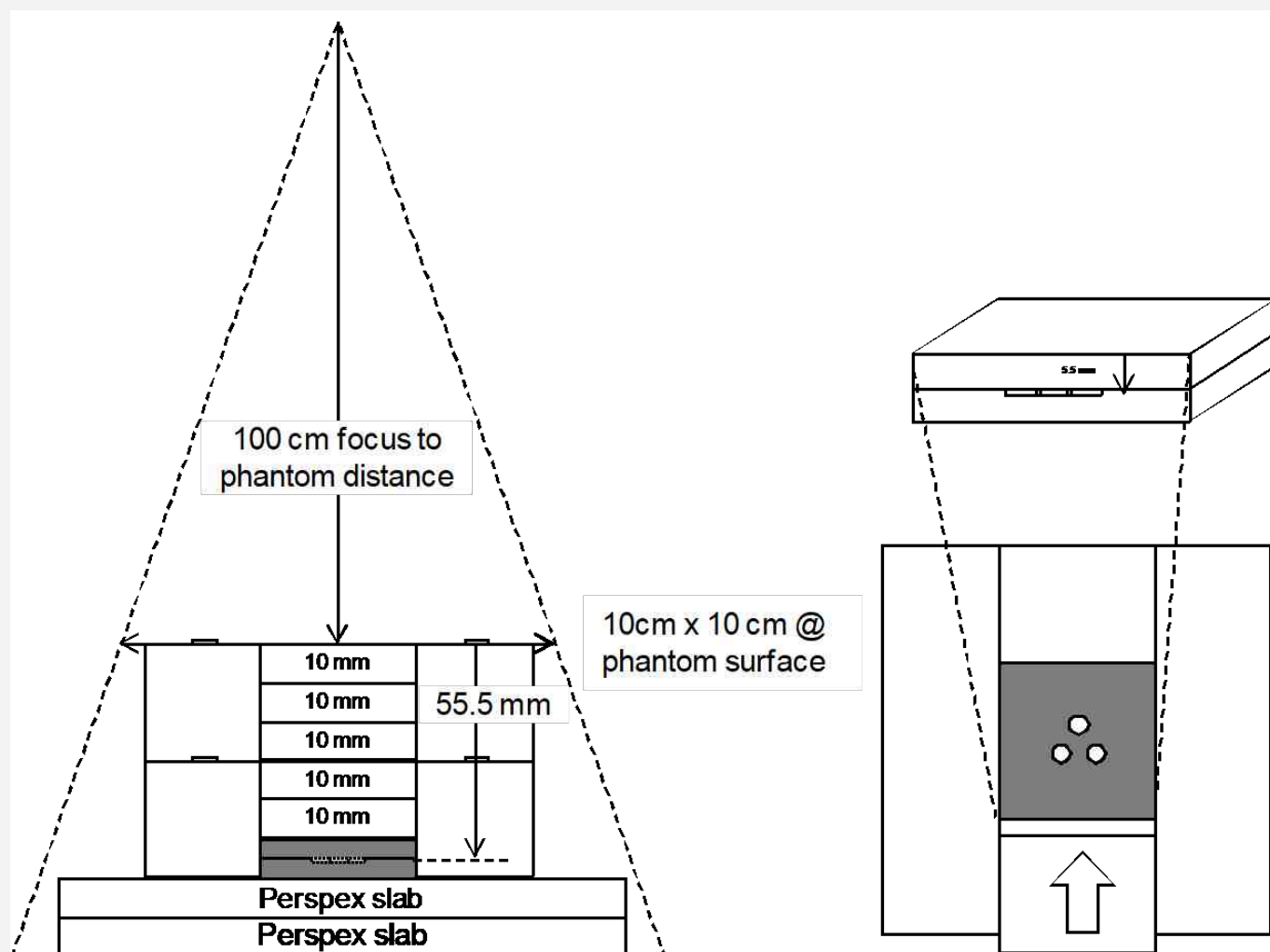


Figure 1. Assembly of the measurement equipment for photon beams: phantom and (closed) phantom frame

2. Material 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 2022 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 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.

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.

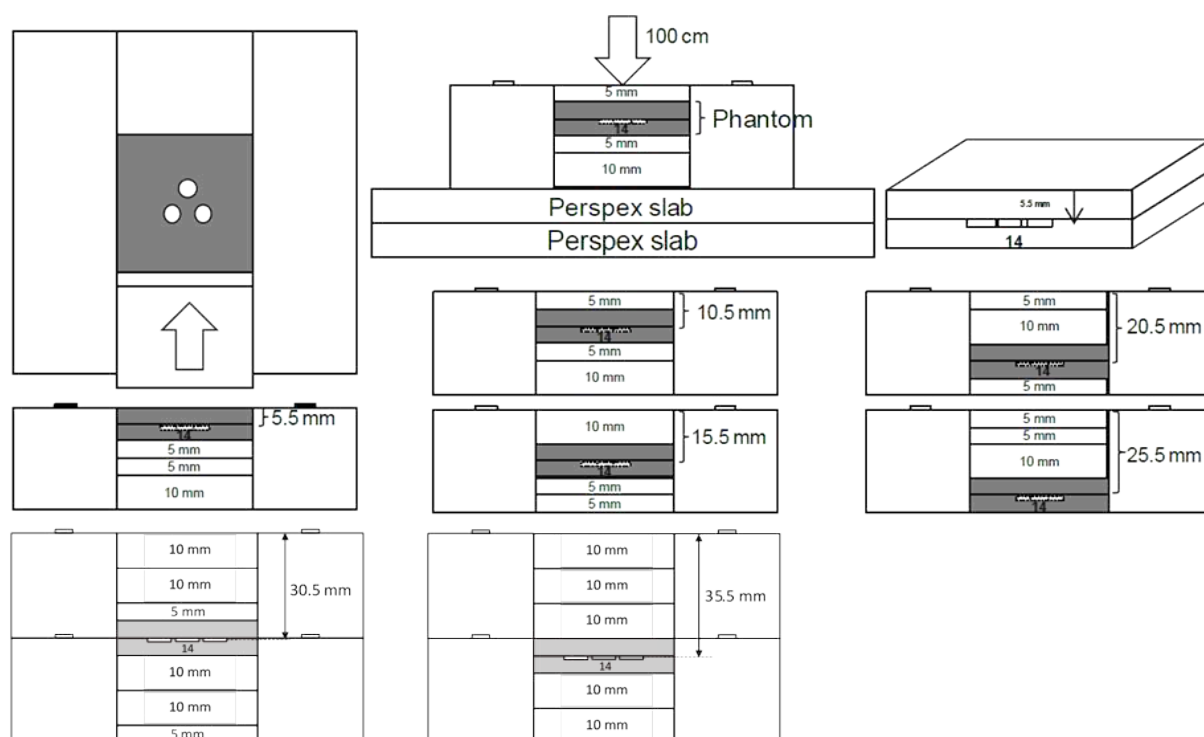


Figure 2. Assembly of the measurement equipment for electron beams: phantom and (closed) phantom frame

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 (5.55 cm), 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.

Four runs of measurements were necessary for the 30 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%.

The probability for the Ds/Dm ratio to fall outside of the intervals 0.96-1.04 and 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.

3.1 Electron beams

The mean Ds/Dm 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 Ds/Dm ratio for all the electron beams is illustrated in Figure 4.

The statistics of the Ds/Dm ratio for all the electron beams are given in Table 1.

The mean value of Ds/Dm for all electron beams is 1.013. The statistical dispersion is large and does not show any bias between the participant dosimetry and the TLD dosimetry of this audit, even for the 9 MeV beams.

96% of the results are in the interval 0.94-1.06, i.e. within $\pm 6\%$, which is judged satisfactory. In addition, 75% of the results are in the interval 0.97-1.03, i.e. within $\pm 3\%$.

Only one beam did not meet the $\pm 6\%$ criterion. The verification by the physicist with the reference dosimeter did not show this discrepancy. The origin of the problem is the depth of measurement with the TLD. It was before the maximum of dose. The repetition of the measurement with TLD at the recommended depth showed a good agreement with the stated dose.

3.2 Photon beams

We checked 60 conventional beams with flattening filter (FF) and 61 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 Ds/Dm ratio for all the photon beams is illustrated in Figure 6.

The statistics of the Ds/Dm ratio for all the photon beams are given in Table 2.

The mean value of Ds/Dm for all photon beams is 1.002. No significant bias is observed between the participants dosimetry and the TLD dosimetry. The difference between the mean values of Ds/Dm for FF beams (1.003) and FFF beams (1.002) is not significant.

For 98% of the tested beams, the Ds/Dm value is in the interval 0.96-1.04, i.e. within 4%, which is judged satisfactory. In addition, 74% of the results are in the interval 0.98-1.02, i.e. within 2%.

The two beams for which the deviation was slightly above 4% were tested again, one after an upgrade of the machine and a new dosimetry, and the other in the same conditions but considering the sharp dose profile of the beam in the stated dose. In both cases, the second TLD measurements revealed a good agreement with the stated dose.

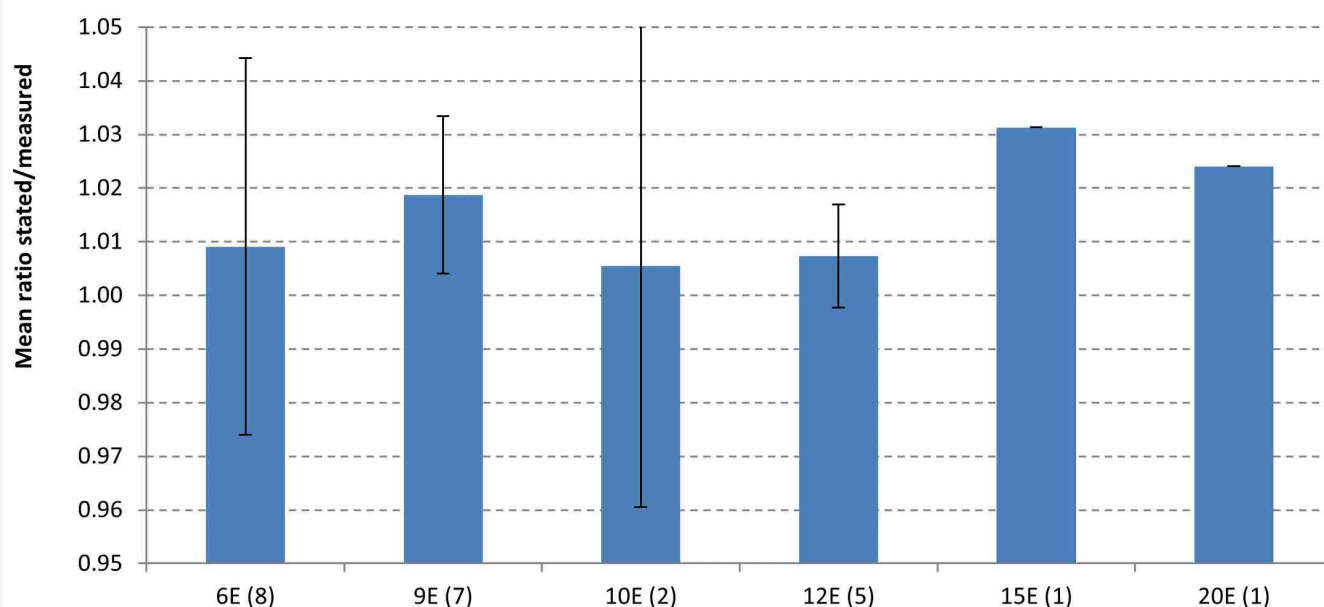


Figure 3. Electron beams: mean Ds/Dm ratio for the different radiation qualities.
The number of beams is given in brackets. Error bars=std dev.

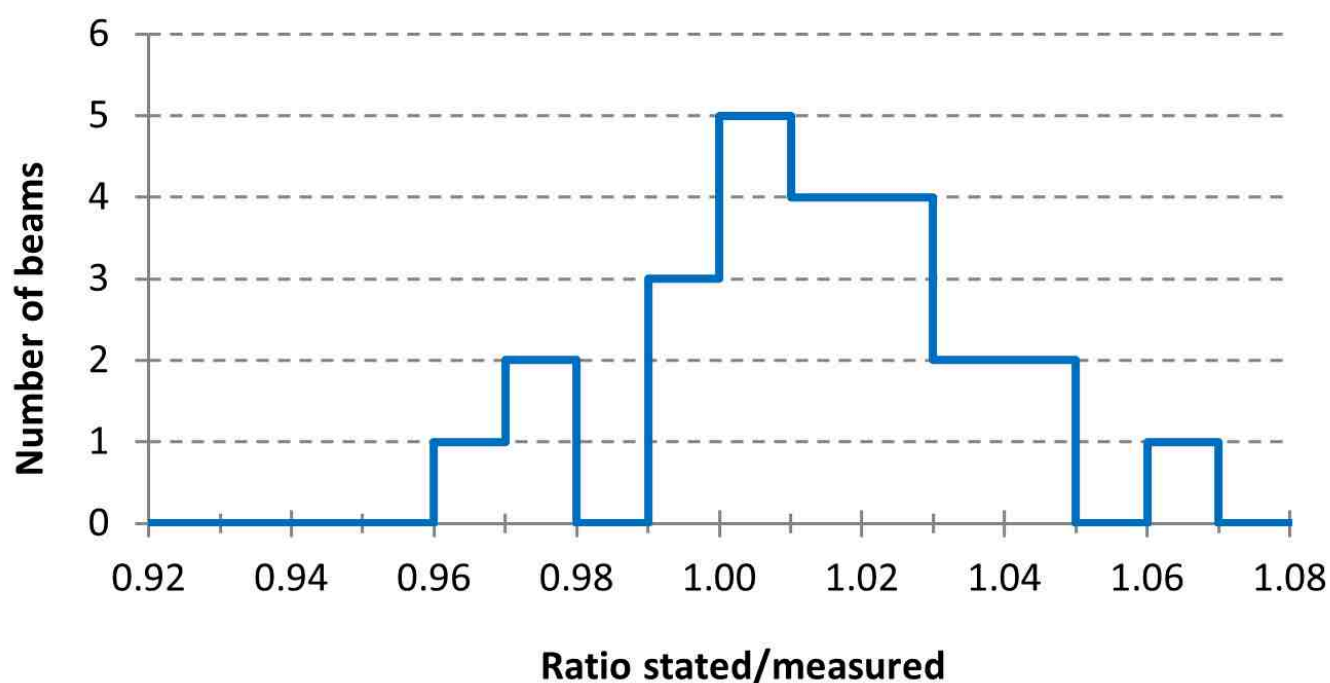


Figure 4. Electron beams: histogram of Ds/Dm ratio for all 24 beams

Parameter	Electron beams
Beam number	24
Mean	1.013
Std dev.	2.4%
Minimum	0.961
Maximum	1.061

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

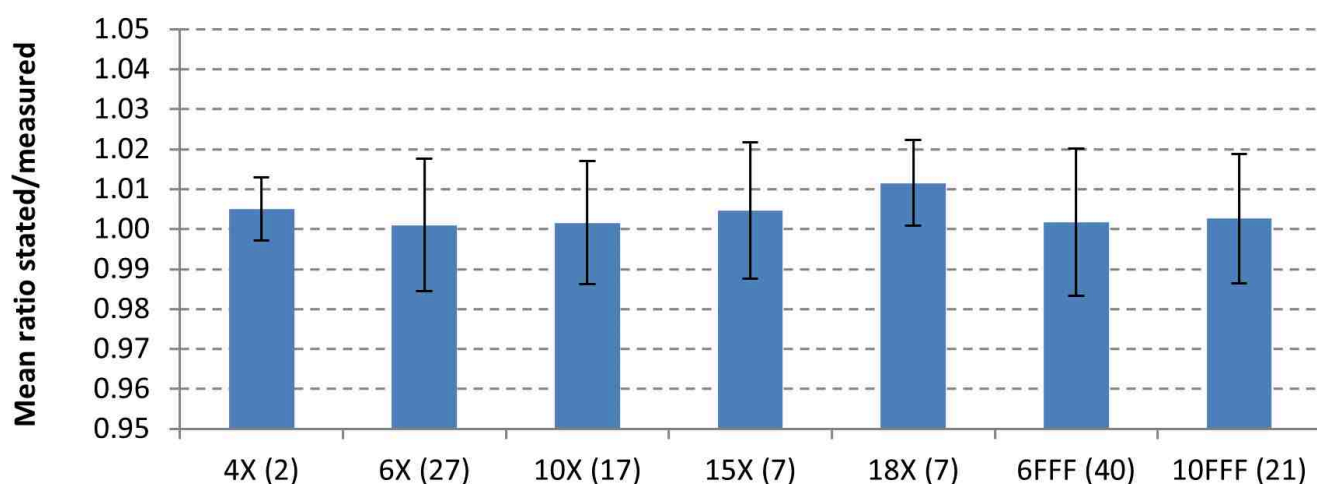


Figure 5. Photon beams: mean Ds/Dm ratio for the different radiation qualities. The number of beams is given in brackets. Error bars=std dev.

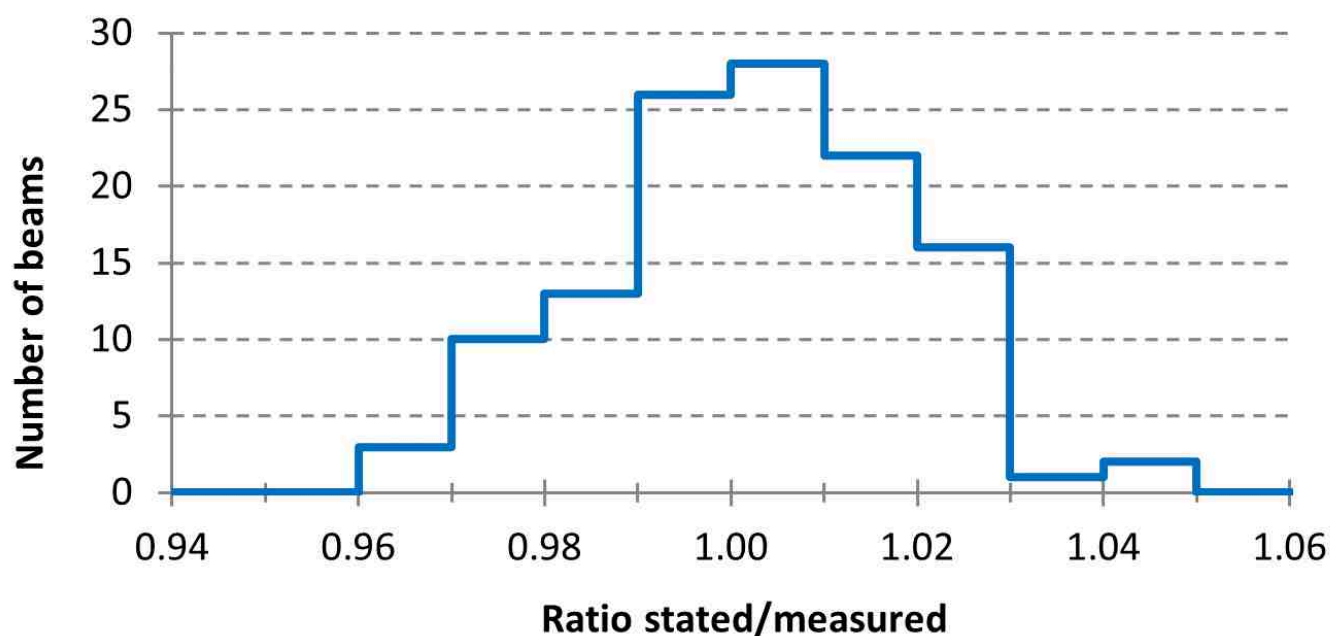


Figure 6. Histogram of Ds/Dm ratio for all 121 photon beams

Parameter	FF beams	FFF beams	Both types
Beam number	60	61	121
Mean	1.003	1.002	1.002
Std dev.	1.5%	1.8%	1.6%
Minimum	0.962	0.960	0.960
Maximum	1.033	1.045	1.045

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

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.

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 five 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.

Similarly, for electrons, the expanded uncertainty (k=2) is 4%.

Dosimetry protocol

All participants carried out the reference dosimetry using the SSRMP recommendations No. 8 and No. 10, or the IAEA TRS-398 protocol, apart from 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. Three 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 1.002 and 1.005 (mean values). For a CyberKnife, two participants 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 145 beams has been checked. The results of the 2023 TLD dosimetry intercomparison are good.

For photon beams, 98% of the tested beams were within $\pm 4\%$ of the TLD dose and 74% were within $\pm 2\%$. Only two beams out of 121 did not meet the satisfactory criterion of $\pm 4\%$.

For electron beams, only one out of 24 was beyond the criterion of $\pm 6\%$.

In all cases, it was recommended that the dosimetry be verified with the reference dosimeter. This check did not reveal any major errors.

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

SSRMP Research Grant 2024

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 2024.

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

SSRMP Research Grant 2023

For the Research Grant 2023 one application was received and reviewed by the Scientific Committee.

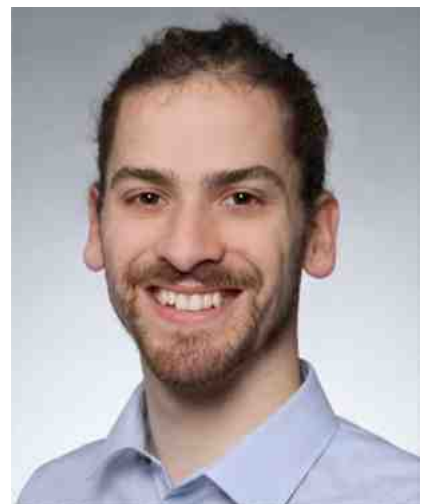
The Committee has decided to award the research grant and congratulates with **Florian Amstutz**!

SSRMP Research Grant Proposal

Florian Amstutz

Survey on Deformable Image Registration (DIR) usage and multi-institutional comparison of DIR-based dose accumulation

Deformable Image Registration (DIR): Determine the status of DIR usage in Swiss Radiotherapy Centers and, within that context, focus on one DIR-based application with a multi-institutional dose accumulation comparison.



Varian Award for Radiation Oncology of SSRMP 2024

Deadline for submission: March 31st 2024

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 2024 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

Varian Award 2023

At the general assembly on November 30, 2023, two publications were awarded a prize:

- the **Varian Recognition Award 2023** to Alisha Duetschler, for the work "Synthetic 4DCT(MRI) lung phantom generation for 4D radiotherapy and image guidance investigations";



Our paper presents newly developed numerical 4DCT(MRI) lung phantoms based on a large variety of patient CTs, which provide realistic representations of the tissue heterogeneity necessary for accurate dose calculation. With the large motion library based on volunteer 4DMRIs used to animate the CTs, the phantoms cover a wide range of 4D treatment scenarios. The developed 4D lung phantoms, with their accessible ground truth motion fields, are an important tool for the evaluation of novel image guidance techniques in radiotherapy, as well as for further developments in deformable image registration and 4D treatment planning and optimization.

- the **Varian Main Award 2023** to Till Tobias Böhlen, for the work "Normal Tissue Sparing by FLASH as a Function of Single-Fraction Dose: a Quantitative Analysis"

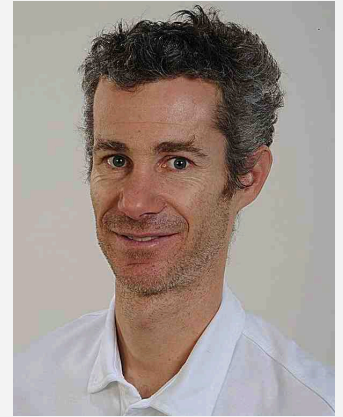


There is mounting preclinical evidence that ultra-high dose rate "FLASH" radiotherapy has the potential to improve the therapeutic index of radiation therapy at conventional dose rates by sparing normal tissues while retaining tumour control. Our systematic analysis of preclinical data evaluated the magnitude of normal tissue sparing effect by FLASH and revealed a piecewise linear dependency on dose. A better understanding of the magnitude of the FLASH effect and its dependencies on treatment delivery parameters, such as the dose, enables and enhances modelling of the FLASH effect and is pivotal to ensure its optimized clinical transfer.

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

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

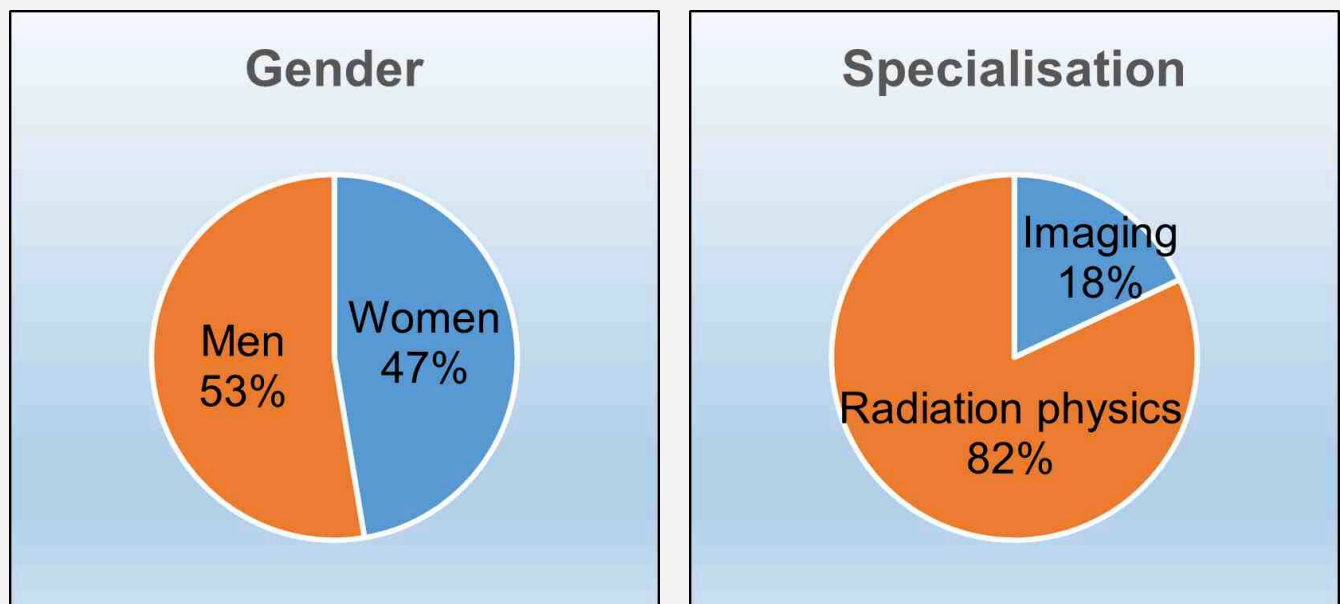
Education Committee Annual Report



Dear colleagues

In 2022 and 2023, 17 and 13 candidates, respectively, successfully passed the SSRMP certification exams in medical physics. We warmly welcome our new colleagues into our community.

An additional 38 candidates are in the process of acquiring the SSRMP certification. The gender, as well as the specialization of the candidates are described in the following diagrams:



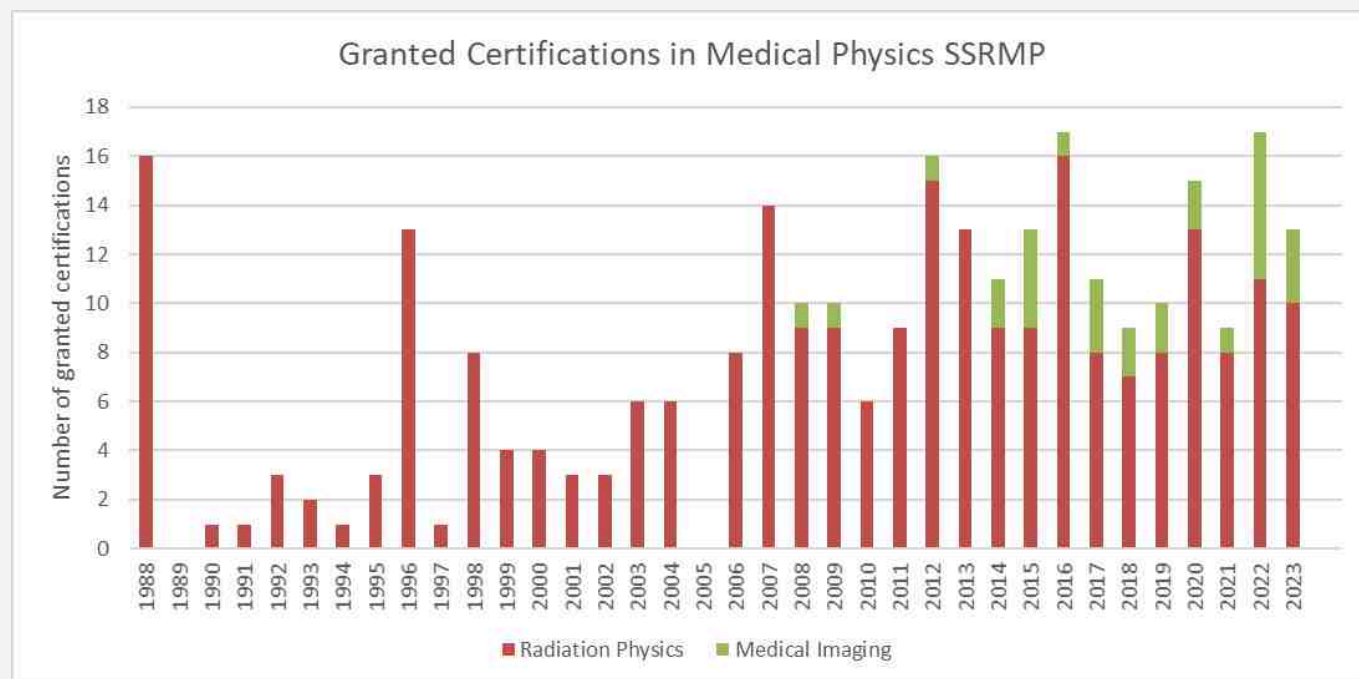
In 2023, three clinical education days organized by SRO and SSRMP for medical physics trainees were organized. The topics covered during these courses were:

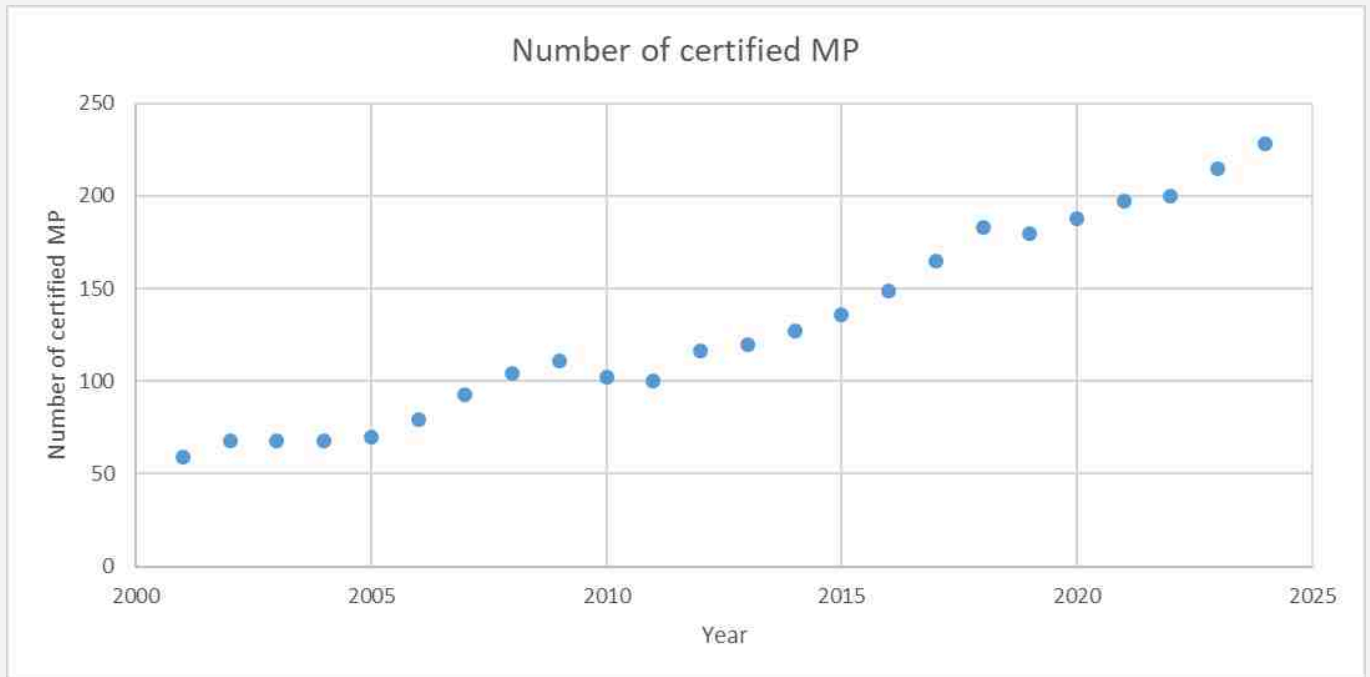
- Paediatric and CNS tumours; proton therapy
- Benign diseases, skin tumours, lymphomas, sarcomas and hyperthermia
- Gastrointestinal tumours and palliative radiotherapy

Participation is not mandatory, however is highly encouraged for all medical physicists in training. A great "thank you" goes to Anna-Lena Eberhardt who organised these lectures, and to all the speakers.

A course covering the nuclear medicine topics from the [third week of radiation protection \[1\]](#) was held in September in Lausanne for certified and trainee medical physicists. A very large number of physicists wanted to take this course. Due to the limited number of available places, some applications had to be refused. As a result, this course will be offered again in the next two to three years. A similar course covering radiology topics will be held from the 15th to 17th of April 2024 in Zurich. Many thanks to Thiago Lima and Natalia Saltybaeva for organising these courses.

With the 13 physicists certified in 2023, we currently have 230 medical physicists with a valid certificate. The number on "newly" certified physicists and the total number of certified physicists as a function of years are displayed on the two following graphs.





In 2023, the Education Committee updated the annex IV, Examination regulations. The document has been approved in August by the board committee and **has been published [2]** on the SSRMP-webpage. The Education Committee is also actively working on the revision of the annex II, *Stoffkatalogue*. Hopefully the revision should be completed by spring 2024.

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

On behalf of the Education Committee,

Jérôme Krayenbühl

[1] https://ssrpm.ch/wp-content/uploads/2020/06/Concept-RadProt_Board_2022-06-01.pdf

[2] https://ssrpm.ch/wp-content/uploads/2024/01/Examination-Regulations_2023_12_13.pdf

Results of the Certification Exams 2023 in Medical Physics (SSRMP)

In the exams for the certification in medical physics SSRMP 2023 (23.10. - 06.11.) the following 13 colleagues succeeded (three with a certificate in medical imaging):



Upper row from left to right:

Misael Caloz, HUG (Geneva)

Boris Dettinger, Zürich (SNRC)

Silvia Fabiano, Zürich (USZ)

Yusuf Karakaya, Strasbourg (Fr)

Lorenzo Mercolli, Inselspital

Klara Kefer, USZ Zürich

Diana Wüthrich, Lausanne (CHUV)

Lower row from left to right:

Mireille Conrad, Clinique de Genolier

Marius Eichler, Kantonsspital Aarau

Jennifer Griessinger, Kantonsspital Aarau

Siria Medici, Lausanne (IRA)

Rosalind Perrin, Hirslanden

Michelle Van Heerden, PSI

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, 08.11.2023.

Nuclear medicine education course 2023

Lausanne, 25th-27th of September 2023

This year the SSRMP offered a 2.5-days course in the field of nuclear medicine for medical physicists already certified or in training. The course took place at CHUV/IRA in Lausanne and was promoted by Thiago Lima, on behalf of the SSRPM Working Group on Nuclear Medicine Physics Tasks and the local team at CHUV.

The aim of the course was to review the physics of nuclear medicine in line with the SSRPM training/education program for the certification of medical physicists, in compliance with Article 36 of the Swiss Radiological Protection Ordinance.

The course focused on tasks, duties, and responsibilities relevant for the SSRPM-certified medical physicist in order to give an appropriate support for nuclear medicine applications. Moreover, the course counts for the 3rd week of training/education on radiation protection required for the medical physics Swiss certification.

Below is a feedback from one of the participants.

During the Nuclear Medicine Education Course in September 2023 at CHUV in Lausanne, we explored dosimetry, particularly patient-specific dosimetry for therapy with guidance from Thiago Lima. We looked at how dosimetry is applied in practice using actual cases, which highlighted the importance of precise dose calculations in nuclear medicine treatments according to local regulations.

I think it's worth mentioning some of the practical activities we have been involved in:

- The practical part of our session involved using look-up tables in different languages. These tables provided solutions to dosimetric challenges, showing their role in the accuracy of nuclear medicine.
- We also investigated smart clinical programs. These are tools that help automate and improve processes in dosimetry, supporting treatment planning and dose calculations.
- We discussed the need to adjust dose calculations for each patient. We considered dosimetry for intravenous treatments too, noting the importance of the timing of measurements and observations. Thiago introduced us to a tool named SlicerOpenDose3D, which makes it easier to calculate and see how much radiation a patient gets during treatment.
- For the theoretical part of the sessions, we learned about the Hänscheid method for estimating absorbed radiation dose in radionuclide therapy. This method provides a simpler way to estimate radiation doses when detailed time-activity data isn't available.

Overall the course has been very interesting and valuable for both young Medical Physicists looking to complete their training and also experienced colleagues aiming to refresh their experience with Nuclear Medicine topics.

Ailin Parsa

Team Radiologie Plus

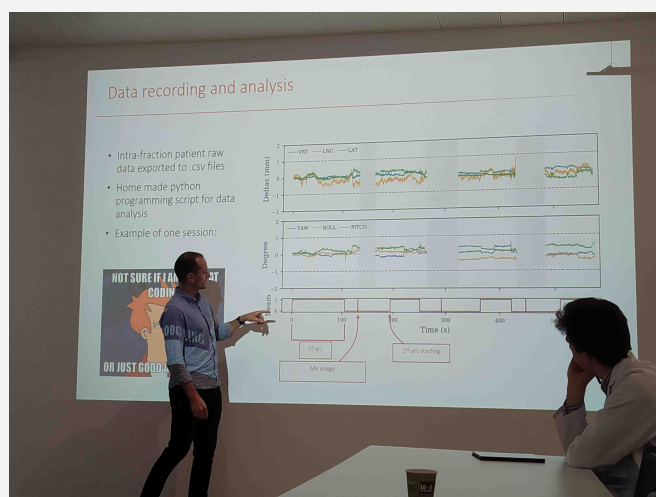
French-speaking Medical Physicist's Day

Hôpital de la Tour, Meyrin, 6th of October 2023

The second French-speaking Medical Physicist's Day of 2023, which took place on 6 October at the Hôpital de La Tour in Meyrin, was an exciting and informative event that explored various facets of medical physics.

The event started with Vincent Fave's presentation on the radio-oncology service and their technical facilities, preparing the ground for an exciting journey into the world of medical physics.

Misaël Caloz from HUG then gave an insightful presentation on the derivation of margins from intrafraction patient movement in multi-target, single-isocentre brain stereotactic radiosurgery treatments. The presentation detailed the careful calculation of margins using intrafraction patient data and mathematical formulae. In particular, patient surface shifts were correlated with isocentre shifts, which in turn affected GTV's center position through rigid transformations. The study showed that margins equivalent to a 1 mm distance between the GTV and the isocentre were achieved with the use of Hyperarcs and masks.



Misaël Caloz presenting his work about GTV-PTV margins

Marie Fargier-Voiron from Genolier initiated a discussion on the evaluation of tracking performance of the Radixact machine and its Synchrony option. She pointed out a noteworthy observation: a discernible shift in the measured dose on end-to-end QA films when using the Synchrony option, a difference not readily apparent in the Gamma

Index evaluation. This interesting finding revealed the hidden issues of dose measurement errors associated with the Synchrony option, and offers valuable considerations for quality assurance practices using this option.

After a much-appreciated coffee break, Anaïs Viry from the CHUV took the stage to explain the key role of medical physicists in radiology. She highlighted the essential role they play in healthcare, focusing on using ROC curves and DRL analysis to optimize dose and adapt clinical protocols to reduce patient exposure while maintaining high image quality.

Following the presentations, participants were invited on a guided tour of the department to observe the Ethos machine in action during two adaptive prostate treatments. This hands-on experience provided an up-close look at how the machine works and how it fits into the clinical workflow. Seeing the Ethos in action was particularly enlightening, providing a practical understanding of its capabilities and how it enhances treatment precision. The interactive session encouraged questions and discussion, resulting in a deeper understanding of the role of advanced technology such as AI in improving patient outcomes.

The afternoon ended on a thoughtful note as Vincent Fave detailed the subtleties of calibrating the Octavius 4D and the SRS1600 array in Hounsfield Units, a critical component of accurate patient's specific QA verification. We would like to thank the Hôpital de La Tour for their warm hospitality and Vincent Fave for his expert organization of the meeting. We are truly grateful for the seamless coordination and effort that went into making the event a success.

The following meeting will be held in March at the Bois-Cerf Clinic in Lausanne. We hope to see many of you there!

Izabella Veres
Clinique Générale-Beaulieu, Geneva

SSRMP Continuous Education Day: Potential and Future of Spatially Fractionated Radiotherapy Bern, 27th of October 2023

On Friday 27 October 2023, the continuous education day about spatially fractionated radiotherapy (SFRT) took place at Inselspital Bern. The event featured esteemed national and international speakers who delved into ongoing research, pre-clinical trials, and clinical experience related to SFRT.



Overall, the most interesting for me was to see the state-of-the-art research and what is already clinically happening. Especially, the implementation of the GRID and Lattice therapy and the process of bringing it into the clinics has fascinated me from the talks in the afternoon. Seeing the impact on some patient cases and how tissue sparing was achieved by these techniques impressed me. However, a takeaway from the research talks is that there is still a lot going on that could be beneficial in the future for further improving clinical outcomes for cancer patients.

A huge thank you to all the organizers and speakers for this fascinating educational day!

Lisa Fankhauser
Paul Scherrer Institut

Before the engaging talks, we got to have a coffee together with all the attendees allowing us to share our thoughts on the topic and to get to know the other participants. Afterwards, there was an introduction to the world of SFRT and all the different kinds of sizing it includes: from microbeam radiotherapy to GRID radiotherapy. Followed by presentations about the ongoing research in the field of SFRT, we've been introduced to generating microbeams at synchrotron facilities and how to bring them to compact non-synchrotron fields. Furthermore, biological effects and hypotheses were shown using microbeams instead of conventional ones and what preclinical experience has shown regarding the effects on tumor tissue and organs at risk. Additionally, a size bigger, the minibeam were introduced, and how to bring them from the research into clinical application.



Paolo Pelliccioli (left) and Cristian Fernandez-Palomo (right) during their presentations

Applied Medical Physics (AMP) meeting Bern, 15th of December 2023

Applied Medical Physics meetings are held twice a year and are open to anyone interested in medical physics. The second AMP meeting of 2023 took place on the 15 of December in Bern with the attendance of around 20 physicist from all around Switzerland.

As usual, the meeting opened with the report of the SSRMP president, Marta Sans-Merce. She briefly discussed SSRMP activities this year, like the continuous education day, TLD intercomparison, the annual meeting, the salary survey or the project to digitalize paper archives. She also mentioned some of next year's events: the Swiss Meeting for Medical Imaging Specialists (June 20-22 in Geneva) and the tri-nation conference that will be held in conjunction with the next ECMP (11-14 September in Munich).

The main topic of this AMP meeting was Hyperthermia. First, Adela Ademaj from Kantonsspital Aarau presented experimental and clinical evidences of hyperthermia. Then, Markus Fürstner from Inselspital and Lisa Milan from the Imaging Institute of Southern Switzerland in Bellinzona presented the experience of their centers with hyperthermia, focusing on commissioning, QAs and examples of treatments. Both centers are equipped with superficial and deep hyperthermia systems. The presentations were followed by an interesting discussion about their different methods and the challenges they faced, with a great emphasis on the necessity to share knowledge and experiences.

Afterwards, Thiago Lima, from Luzern Kantonsspital, presented the new revision of the directive L-09-04 for QA of PET, PET-CT and gamma-cameras and highlighted the changes made to this document. He is himself a member of the working group for this revision. This revision was made with the idea to bring the Swiss directive closer

to international recommendations and to improve patient safety and quality. This presentation was followed by an interesting and challenging discussion about the responsibilities and tasks of medical physicists in regards to testing and controls of imaging devices.

The chairs of three of the SSRMP working groups then gave reports about their work: Thiago Lima for the Nuclear Medicine Physics Tasks working group, Elina Samara for the Cumulative Dose working group and Lisa Milan for MR-only workflow working group.

The meeting ended with a short report of an incident with a faulty bunker door from Spital Thurgau. The aim of this presentation was to raise attention about door shielding, and specifically regularly checking neutron dose behind doors.

The next AMP meeting will take place on 28th June 2024 in Berne. More details to come!

Mireille Conrad
Clinique de Genolier





The Medical Physics Service at Ente Ospedaliero Cantonale (EOC)



Introduction

The Medical Physics Service at the multi-site hospitals of Ente Ospedaliero Cantonale (EOC) was established in January 2015 through the fusion of the Radioprotection unit and the Radiotherapy Physics unit. Operating independently from its internal clients, the Medical Physics Service reports directly to the Administrative Directorate. Our team comprises 7 SSRMP-certified physicists (5.8 FTE), 2 dosimetrists (2 FTE), and 1 TRM (0.5 FTE) dedicated to machine quality assurance (QA). Additionally, we maintain a position for a medical physicist in training. The head of the Medical Physics Service also holds functional dependence over both the technical and medical radiation protection experts across EOC.

Beyond our core involvement in Imaging, Radiation Protection, and Radiation Oncology, we actively collaborate with various EOC departments, contributing to materiovigilance and quality management. Our commitment to a multi-faceted service model allows us to engage with diverse professionals with various skills and specializations, providing a translational approach to development and problem solving.

Our vision is a university-valued institute. Our mission is to ensure that patients receive the best possible care while being mindful of the sustainability of the ecosystem in which we operate. To achieve this, we prioritize the quality and safety of our work, placing patients and operators at the forefront. We emphasize collaboration, communication, accountability, passion, ethics, and respect for rules.

Our work for Radiation Oncology

Our team operates in two radiotherapy sites in Ticino, one in Bellinzona and one in Lugano. Each facility is equipped with a Varian Truebeam, featuring beam-matched linear accelerators. The clinic of radiation-oncology is provided with a dedicated Philips CT and a Philips 1.5 T MR. MR is used both for imaging and treatment simulation. The Radiation Oncology clinic provides treatments for a spectrum of common tumor sites in both radical and palliative intents. The most part of the treatments are performed with tattooless set up facilitated by the C-RAD Catalyst surface imaging system. This system allows also patient monitoring during the treatment and the use of motion mitigation strategies such as 4DCT acquisition and DIBH treatments.

Our team has extensive experience with SRT/SBRT treatments for multiple sites such as bones, lymph nodes, brain and lungs, which has been recently extended also for prostate and kidney SBRT. We utilize specialized systems such as the Brainlab ExacTrac imaging and the Multiple Brain Mets TPS for brain tumor treatments. We recently introduced the Lattice SBRT technique for treating large volumes with high doses for palliative intents.

Since few years we introduced knowledge based treatment planning for prostate, breast, and H&N treatments to enhance efficiency and quality of the treatment plans. Recent advancements include the introduction of autocontouring for OARs, and ongoing testing of AI-based applications for autocontouring on both CT and MRI, along with AI-based dose prediction tools.

Spotlight on...

In August 2022, we introduced an MR-only workflow for prostate treatments where we use synthetic CTs for treatment planning. After gaining experience in this field, we expanded the MR only workflow to other pelvic treatments, such as rectum, gynecological, and anal canal. We also perform brachytherapy treatments for gynecological tumors. The treatments are delivered with the Axxent Xofter unit, a device featuring a miniaturized kV source at low energy. This portable device is also used for breast IORT and skin treatments.

In late 2021, the radiotherapy capabilities were enhanced with the integration of ALBA hyperthermia systems, providing both superficial and deep treatments for metastases or recurrences from sarcomas, breast, rectum, uterus, and lung tumors.

Our ongoing R&D is mainly focused on MRI applications. We are validating an MR-only workflow for brain treatments and exploring AI-based applications for generating MR-based synthetic CTs. Additionally, we are investigating MR thermometry for quality assurance in hyperthermia.



The Medical Physics Service team. From the left: Margherita Corsi, Francesco Pupillo, Lisa Milan, Maria Antonietta Piliero, Luca Bellesi, Stefano Presilla, Matteo Coppotelli, Margherita Casiraghi, Klaudia Krzekotowska, Marco Balbina

Our work for Radiation protection and imaging

The aim of our work in radiation protection and imaging is to assure quality and the safety of the imaging and therapeutic procedures involving ionizing radiation.

Within the clinic of nuclear medicine we perform QA assessment for SPECT/CT and PET/CT equipment, verify the safety of activimeters, hot chambers, and radioactive liquid disposal systems. Additionally, our involvement extends to participating in the delivery of radio-metabolic treatments and conducting dosimetry for Y-90 therapy. Operating across four radiology departments and as many operating room units (Mendrisio, Lugano, Bellinzona, Locarno), we conduct image quality tests and dosimetric and environmental measurements for CT scans, angiographers, mammographs, and intraoperative imaging devices. Collaborating closely with Radiologists, neuroradiologists, and MTRA professionals, we continuously optimize imaging protocols and procedures to ensure the radiation protection of both patients and workers. Since 2017, we have implemented the Bayer Radimetrics application to record and manage patient-imaging doses efficiently.

We provide education and continuous education in radiation protection. We have implemented an e-learning program that offers both general and specialized content tailored to various application areas, including radiology, radiotherapy, and nuclear medicine, targeting referring doctors as well. Additionally, we conduct specific on-site training, focusing on practical aspects such as the optimal use of C-arms in the operating rooms.

Current development projects focus on procedure optimization and dosimetry assessment for interventional neuroradiology and optimization of ultra-low dose CT imaging protocols.

Quality management and continuous improvement

We play an active role in continuously improving the quality of applications involving ionizing radiation. This dedication includes leading self-assessment audits and participating in multidisciplinary meetings for incident analysis in the field of radiotherapy, nuclear medicine, CT, and angiography. Moreover, we are responsible for the management of licensing documentation and collaborate to the creation of guidelines and documentation, incorporating internal radiation protection instructions and quality handbooks.

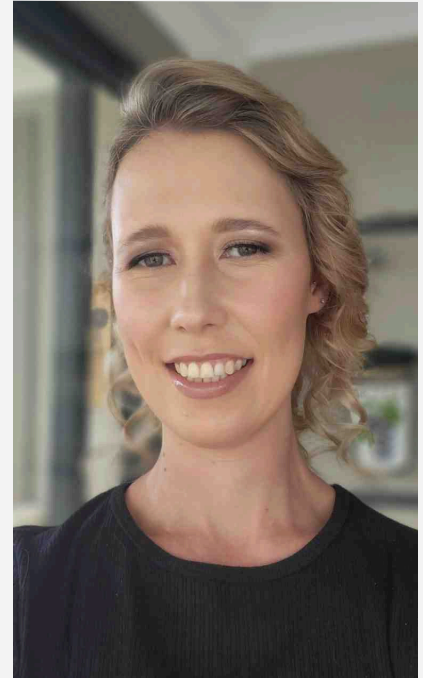
You are welcome to come visit our service, and we are always excited about the possibility of working together and exploring collaborations. Looking forward to connecting with you!

The EOC Medical Physics Service

“Welcome!”

Michelle van Heerden

My journey in the field of medical physics began in central South Africa (my home country), in the city of Bloemfontein where I studied an undergraduate and postgraduate honours degree in radiation sciences/medical physics at the University of the Free State (UFS). I thoroughly enjoyed my studies there and found meaningful relationships with mentors in the department. I was fortunate enough to receive a bursary through UFS to do a master's degree, concentrating on a project brought forward by NTeMBI (Nuclear Technologies in Medicine and the Biosciences Initiative) and VLIR (Flemish Interuniversity Council Own Initiative Programme). The project concentrated on characterizing small stereotactic X-ray fields which were then used to irradiate mouse intestinal sections in-vivo, the dose-volume effect in the acute reacting organ was thus demonstrated. My interest in medical physics was certainly elevated after this experience.



I decided that I would like to pursue a career in clinical medical physics and work hands-on in a radiotherapy department. To realize this dream, I needed to complete an internship at an academic hospital and become registered with the HPCSA (Health Professions Council of South Africa). At the time, internships were very limited and the few positions that were available could not guarantee funding over the 2-year training period. Netcare, one of South Africa's leading private healthcare providers, was able to offer me a bursary to complete the internship at any of the academic training hospitals. I made a move to Cape Town, and received professional training in Radiotherapy, Diagnostic Radiology and Nuclear Medicine at Groote Schuur Hospital. Groote Schuur's public radiotherapy department provides services to a large population of people in the Western Cape area. My time spent there was invaluable. After taking the exams and submitting a portfolio, I was registered with the HPCSA.

I went on to gain experience in the private sector at Netcare Milpark Hospital in Johannesburg. There I was involved with some interesting modalities, including Gamma Knife Radiosurgery and Intraoperative Breast Radiotherapy. I also performed routine testing of Cathlab units and other diagnostic machines. Two and a half years ago, to further my horizons, I started working at PSI Center for Proton Therapy. This has been a life changing experience and I am still invested in further developing my skills in the field of proton therapy as well as in radiotherapy as a whole. To now be certified with the Swiss Society of Radiation Biology and Medical Physics (SSRMP) is an absolute honour and to be part of the society I hold in high esteem. In my spare time I enjoy playing bass guitar, reading and snowboarding.

Michelle van Heerden
Paul Scherrer Institut

“Welcome!”

Misael Caloz

I come from two wonderful places—Brittany in France and Valais in Switzerland. Even though I was born in Brittany, I practically grew up there, but my roots stretch all the way to Valais through my parents and family. It is quite a good mix I must say !

After grabbing my physics degree at the University of Rennes I, I headed back to Switzerland, Geneva specifically, to dive into the wild world of particle physics. When it comes to particle physics, CERN and the University of Geneva are where it's at. I then did a PhD in quantum optics and communication, and worked at Ecole Polytechnique de Lausanne (EPFL) for a while before coming back to medical physics.



Three years ago, I had the wonderful opportunity to work in radiation oncology at Geneva University Hospital as a trainee medical physicist. This year, I got the SSRPM certification, locking in my spot at Geneva Hospital—I'm hoping to stay around for the long term. The atmosphere here is fantastic, with awesome colleagues and a great working environment too.

On the personal side, I have a lot of different passions. To name a few, my all-time favorite where I spend most of my weekends are ski touring/alpinism and kitesurfing. And because variety is the spice of life, I also lace up my skates for some amateur ice hockey—also sometimes called the "beer league".

I am very excited about my journey in medical physics. I am always up for congresses and conferences, so who knows, we might meet there in the future.

Misael Caloz
Hôpitaux Universitaires de Genève

Binary Sudoku

A variant of Sudoku for the binary minds!

Rules:

- No more than two consecutive 0s or 1s
- Each row and column must contain as many 0s as 1s
- No two rows or columns can be identical

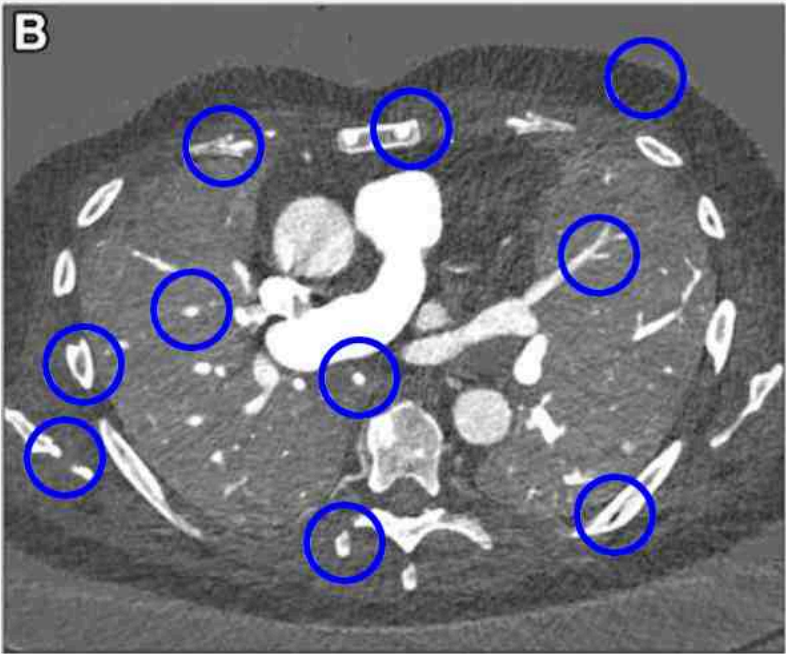
	0					0	
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Easy

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	0		1		1		
0		0			0		0

Medium

Solution of the August Puzzle:



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Call for Authors

You are all invited to participate in the construction of our Bulletins.
Of desirability are all contributions that could be of interest to members of our society, such as

- Reports of conferences, working group meetings, seminars, etc.
- Reports on the work of various committees and commissions
- Succinct results of surveys, comparative measurements etc.
- Short portraits of individual institutions (E.g. apparatus equipment, priorities of work, etc.)
- Reports on national and international recommendations
- Short Press Releases
- 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.)

The easiest way to send your document is as Word or ODT document via email to bulletin@ssrpm.ch.

Deadline for submissions to Bulletin No. 108 (May 2024): 14.04.2024

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Event Calendar

Feb 28 Vienna, A	European Congress of Radiology - ECR 2024 Feb 28 - Mar 03 https://www.myesr.org/congress/
Mar 10 Pichl, D	Winterschule Pichl für Medizinische Physik Mar 10 - 22 https://www.winterschule-pichl.de/
Mar 22 Bern	BAG/KSR Seminar "Just Culture in Radiation Protection" Mar 22 https://www.bag.admin.ch/bag/de/home.html
May 03 Glasgow, UK	ESTRO 2024 May 03 - 07 https://www.estro.org/Congresses/ESTRO-2024
Jun 12 Dijon, F	62ème Journées Scientifiques - SFPM Jun 12 - 14 https://www.sfpm.fr/node/1022
Jun 28 Bern	SSRMP AMP Meeting Jun 28, 9:30 - 12:30 https://ssrpm.ch/events/
Jun 20 Geneva	Swiss Congress of Radiology - SCR'24 Jun 20 - 22 https://congress.sgr-ssr.ch/
Sep 11 Munich, D	5 th ECMP - Joint Conference of the DGMP, ÖGMP & SGSMP Sep 11 - Sep 14 https://ecmp2024.org/
Sep 19 Campus Sursee	28th Annual SASRO Meeting 2024 Sep 19 - Sep 21 https://www.sasro.ch/home-2024
Dec 01 Chicago, USA	RSNA 2024 Dec 01 - 05 https://www.rsna.org/annual-meeting
Dec 16 Bern	SSRMP AMP Meeting Dec 16, 9:30 - 12:30 https://ssrpm.ch/events/



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!