

BULLETIN

December 2017



SGSMP
SSRPM
SSRFM

Schweizerische Gesellschaft für Strahlenbiologie und Medizinische Physik
Société Suisse de Radiobiologie et de Physique Médicale
Società Svizzera di Radiobiologia e di Fisica Medica
Swiss Society of Radiobiology and Medical Physics



Letter from the Editors

Dear SSRMP members,

Find a comfortable seat because this issue is going to be a “thick one”, crowded with contents. As is tradition, the different heads of the SSRMP Committees provided a closure report for this year. On the same “fil rouge” we have an overview of the results from the TLD intercomparison, the SSRMP certification exams and the Varian Prize winner of this (almost ending) year. The various committee members are clearly committed to the many ongoing initiatives that are intended to keep our profession up to date, including educational courses, active participation within the European medical physics society, and working group projects. An extensive summary of the concrete actions and initiatives taken over this year in this direction is also given by the SSRMP President in his annual report. I would like to thank the board members for their yearly summaries. It might be seen as their “duty” to provide us with these reports, but it's not easy to find the time or the motivation to prepare them at this busy time of the year! We definitely appreciate their efforts.

The Issues of Interest section has feedback from the education course on Nuclear Medicine, held in Zurich in mid-May this year, as well as a report from the AAPM meeting (where Switzerland was very well represented with a best-in physics talk! - see the report to find out who), a feedback

from the continuous education day about deformable registration, and also the minutes from the EFOMP council meeting.

As you are certainly aware, the new Radiation Protection Ordinance enters into force in the New Year. A new SSRMP working group has been created with the purpose of helping medical physicists in the clinic to understand and fulfill the new requirements of the revised ordinance. There is a short summary of the first kick-off meeting for this working group in this issue.

Finally, we would like to get 2018 off to a good start with a new section in the Bulletin! A Spotlight on PhD students, where colleagues, who are perhaps not yet known to many of us, and who are currently working on their PhD, can introduce themselves and their interesting projects .

To conclude,
warm wishes for a happy Christmas, a happy and rewarding end of the year and a very promising start in the New Year 2018.

Francesca Belosi,
On behalf of the Editorial Team.

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Cover Image: Einstein playing the violin before presenting the field equations of general relativity to the Prussian Academy of Sciences in 1915 - <https://www.pinterest.co.uk/pin>

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PRESIDENT'S ANNUAL REPORT 2017



Dear colleagues,

It is a little bit more than one year since the last general assembly of SSRMP, and I would like to start my president's report by appreciating SASRO for jointly organizing that meeting in August 2016 in Sursee. My gratitude goes mainly to Günther Gruber and Rachid Boucenna for their efforts and their sincere encouragement to establish not only a scientific program for our members but also a pleasant platform to share ideas and make friends.

At our general assembly in 2016, the new SSRMP board was elected and from this election the board was constituted as follows: Peter Manser (president), Raphaël Moeckli (vice-president and chair of science committee), Frédéric Corminboeuf (chair of education committee), Jean-Yves Ray (chair of professional affairs committee), Roman Menz (secretary), Regina Seiler (treasurer), Yvonne Käser, Stefano Presilla, Markus Notter.

During the last year, we had 6 board meetings and one extra-workshop. The latter took place over a two days period in October 2016 in Burgdorf. On this occasion, the board members invested their time to discuss several topics in a more general manner. It was a good experience and the board members addressed questions like: How to optimize the different SSRMP related

tasks? What could be the vision of SSRMP for the next years? How to make medical physics a profession? Which are the topics to focus on in the upcoming months? Of course, at this workshop, it was not possible to completely give answers to all these questions. But it was important to launch a process, by which all the board members are somewhat streamlined such that efficient work is enabled. To my personal impression, this was a real success and I think we are now working together more effectively.

In the last year, we had multiple SSRMP board activities and I provide a summary with the following keyword list:

- Two AMP meetings (Nov 2016, Jun 2017)
- Actively supporting SSRMP working groups, restructuring working groups and construction of new working group on the transfer of radiation protection ordinance to medical physics practice (RPO2MPP)
- Three meetings with BAG (Aug 2016, Mar 2017, Sep 2017)
- Collaborations with other societies like SRO, SGR, SASRO, DGMP, OEGMP, EFOMP, etc.
- Adjusting the scheme of the oral exams to improve efficiency and efficacy
- Clarifications with respect to "Gemeinnützigkeit" and taxes

PRESIDENT'S ANNUAL REPORT 2017

- Communication about SSRMP board activities in the context of the revision of rad. prot. ordinance and development of further communication strategies like the installation of “Talk to the board” and the systematic reports about board activities on AMP meetings
- Improving Bulletin style and design
- Research grant 2017
- Varian prize 2017

It is worth mentioning that the collaboration within the board is a real pleasure and I would like to take the opportunity to thank all the board members for their willingness to support SSRMP in such a way. It is definitely not self-evident that people are interested in being so active for SSRMP and their members while having full calendars and work responsibilities “at home”. I know that it is hard to be involved so deeply and that’s why you definitely deserve my sincere gratitude. To the best of my knowledge, however, I am persuaded that the board’s actions have a huge and positive impact and that the commitment of all the board members to SSRMP (as a society as well as to all the individual members) is not only relevant but highly valuable.

In addition to board activities, there were activities of the permanent committees of SSRMP and more details can be found in their individual reports. Moreover, thanks to many individuals, SSRMP members and their partners could benefit from different events. One of them was the continuous education day 2016 in Bern on the topic of Monte Carlo simulations. Many thanks go to Michael Fix (Inselspital, Bern) and the distinguished speakers. Another important event was the SSRMP education course 2017 in Zurich on “Medical Physics in Nuclear Medicine”, organized by Frédéric Corminboeuf (La Source, Lausanne), Silvano Gnesin (IRA-CHUV, Lausanne) and Konstaninos Zeimpekis (University Hospital

Zurich). The 2-days course was well attended and positive feedbacks were given to the organizers.

In 2017, SSRMP did not organize a scientific annual meeting in Switzerland due to the organization of the Dreiländertagung of DGMP, OEGMP and SSRMP, which took place in September 2017 in Dresden, Germany. As in former times, in the years of the Dreiländertagung, the SSRMP board organizes the general assembly in the context of a continuous education day taking place on October 27, 2017 in Solothurn. I would like to thank Raphaël Moeckli and Jean-François Germond (IRA-CHUV, Lausanne) and as well as Norbert Klippel (Inselspital, Bern and Radio-Onkologie, Solothurn ROSOL) for their support in organizing this event.

Eventually, I would like to look ahead to the next year. Several challenges are waiting for us as a society as well as individuals. We are all going to deal with the implementation of new procedures due to the new radiation protection ordinance, which is valid by the beginning of 2018. In this context, as already preliminarily discussed in the RPO2MPP working group, we are confronted with topics like clinical audits, continuous education strategies, dose reporting for image guided radiotherapy, etc. In addition, SSRMP board is going to continue its work and to collaborate internally with the permanent committees as well as externally with their partners. I look forward to the upcoming year and I can assure that the board is going to address all the challenges with great care.

Peter Manser,

Bern, 27.10.17

PROFESSIONAL AFFAIRS

Professional Affairs Committee Annual Report 2017

The composition of the professional affairs committee remains stable with the continued participation of the current six colleagues. If you are interested to join us, please get in touch with me. Roman Menz, Stefano Presilla and I are involved in the executive matters of the SSRMP along with our colleagues of the board as they also are involved in some professional matters. As an example, Raphael Moeckli leads an important project formed during the board workshop last year. The long term goal is to make the job of the medical physicist a recognized profession by “law”. The lack of legislation supporting the structural organisation of the SSRMP certification makes the actual definition of “certified medical physicist” somewhat loose. Pros and cons have been evaluated. Raphael currently collaborates with the FOPH lawyers to elaborate an adequate strategy.



Under the leadership of Roman Menz, the committee collaborated with various medical physics experts in the field of medical imaging to arrive at a consensus with the Swiss Society of Radiology on the functions and tasks (services) of the medical physicist applicable in the framework of article 74 (ordinance on radiation protection 1994). Although it refers to the outdated ordinance, the responsibilities and tasks still prevail. Nevertheless, we should be prepared to review this consensus.

The survey on professional information for medical physicists in Switzerland, namely the salary survey, was conducted by the professional affairs committee in early summer. The main aim of the survey is to assess the salary of medical physicists in relation with descriptive criteria of the profession. Stefano Presilla gave a valiant effort to convince everyone of you to participate; the higher the participation, the more representative the data is of our professional situations. The FAQs, the shortened questionnaire and the previous report were provided beforehand to invite you to complete the survey. The target group included 189 medical physicists. Stefano has started analysing its results. Despite these improvements, the participation rate remained stable at ~50% as well as the rate of no response at ~30%. The full report should be available soon. Again, the committee invites you, in particular if you did not participate, to share any of your feedback on how to make it better. We will make our best to include your inputs and thereby increase the participation rate.

The board has made many efforts to strengthen the communication with the SSRMP members as described within the “Talk to the board” initiative published in Bulletin n°88. Indeed, the Bulletin is a major piece of our communication platform along with the website and the mailing list. The new website design that puts the three committees upfront as the pillars management of SSRMP and the new layout of the Bulletin aim to further this strategy with easier readability. The development of these has been demanding but I could rely on the enthusiastic support of the editor team and the board. Francesca Belosi has successfully taken over the lead of the editorial team from Nathan Corradini following the

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publication of the Bulletin n°87 in December 2016 and is addressing the challenging new Bulletin. We hope this modern look will stimulate your willingness to write to the community. Although we accept your contributions written in German, French or Italian, English is obviously preferred. As most of our community members are not native English speakers, contributions might require some English spelling checks and revisions that will be performed by Shelley Bulling and Nathan Corradini.

A warm thanks to Francesca, Shelley and Nathan for their commitment.

Triggered by the SSRMP delegates to the EFOMP, the board supports a more active interest in recent EFOMP developments. Stefano Gianolini and Gerd Lutters appointments as delegates have been reconfirmed by the board. Their roles have been further clarified. The delegates will support the SSRMP board in catching up with EFOMP projects, developments and policies; will prepare critical reviews in particular for professional and education strategies; will support the eventual implementation and adaptation of EFOMP policies into the SSRMP framework. On behalf of the board, the chair of the professional affairs committee coordinates the relationship with the EFOMP delegates.

Let me finish with warm thanks to my committee team.

On behalf of the Committee for Professional Affairs,
Jean-Yves Ray

Sion, 27.10.2017

PROFESSIONAL AFFAIRS

The role of the SSRMP delegates to EFOMP

The SSRMP executive board has recently reconfirmed the appointments of Stefano Gianolini and Gerd Lutters as the SSRMP delegates to EFOMP. On behalf of the board, the chair of the professional affairs committee supports the relationship with them. Their roles have been clarified.

Delegates to the EFOMP serve as an important communication and membership link between EFOMP and the National Member Organisations (NMOs), here, SSRMP. The delegates are a key source of information on activities, programs and policies of the EFOMP. The delegates are also a direct contact for the individual member to communicate with.

The delegates support the SSRMP board in catching up with EFOMP projects, developments and policies; prepare critical reviews in particular for professional and education strategies; support when eventually implementing and adapting EFOMP policies in the SSRMP framework. The delegates foster a positive and useful two ways relationship between the SSRMP executive board and the EFOMP leadership.

Delegates' responsibilities and duties

- Delegates to the EFOMP represent SSRMP and vote as the Swiss member organisation. They will be recognized as the representatives of the SSRMP board.
- Prepare, participate and report highlights of EFOMP meetings to the SSRMP board such as periodical council meetings and congresses.
- Regularly communicate EFOMP policy, information, activities and programs to the SSRMP board.
- Evaluate EFOMP matters of interests to SSRMP. Make recommendation for the board.
- Elaborate adaptation plan to support the SSRMP board when implementing EFOMP policies.



Stefano Gianolini

and



Gerd Lutters

Do you know your delegate?

Although the SSRMP president is the first representative of the society, the executive board may require the support of additional delegates.

The board shall formally appoints a delegate as representative to another society or an authority's body to act on behalf of the SSRMP.

This article describes the tasks of two of your delegates.

<http://ssrpm.ch/the-society/board/>

-> Section "Delegates to other societies"

EDUCATION

Education Committee Annual Report 2017

In May 2017, an SSRMP education course entitled “Medical Physics in Nuclear Medicine” was organized in Zürich. Twelve participants took part in the course and were globally satisfied with the lectures and practical demonstrations. Different aspects of the role of medical physicists in nuclear medicine were covered, including: radiation protection, image quality and dosimetry of patients in nuclear medicine therapy.

Five clinical education days were organised in 2017 for candidates for the SSRMP certification. These days were organized by Raphaël Moeckli with the SRO and the different lectures were given by medical doctors. These education days are not mandatory for candidates for the certification, but they are highly recommended by the education committee and were very appreciated by the candidates. Thanks to the support of the SRO, the education days were free of charge.



At the end of November 2016, a continuing education day was organised in Bern on Monte-Carlo. I want to thank Michael Fix for his engagement and excellent organisation.

In November 2016, we tested a new exam organization due to the large number of candidates applying for certification. As it was a successful test, the rules of the Annexe IV of our guidelines for certification were adapted this year. The board endorsed the changes in March 2016. An article explaining the changes to candidates and SSRMP members was published in the Bulletin 88 (April 2017).

At the beginning of November 2017, eleven candidates successfully passed the SSRMP certification exams in medical physics. We warmly welcome our new colleagues to our community!

Finally, I warmly thank all the colleagues of the education committee and the specialisation commission for their support and work.

On behalf of the Education Committee,
Frédéric Corminboeuf

EDUCATION

Results of the Certification Exams in Medical Physics (SSRMP)

In the exams for the certification in medical physics SSRMP 2017 (26.10-3.11) the following colleagues succeeded:



From left to right:

Enrico Barletta, Winterthur (Kantonsspital)

Michael Baumgartl, Basel (Unispital)

Luca Bellesi, Bellinzona (EOC)

Giulia Di Domenicantonio, Genève

Marina Ernst, Zürich (Hirslanden)

Marie Fargier-Voiron

Markus Fürstner, Bern (Inselspital)

Diego Gaudino, Bellinzona (EOC)

Maria Antonietta Piliero, Bellinzona

Natalia Saltybaeva, Zürich (USZ)

Martin Staudacher, Aarau (Hirslanden)

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 exams commission

Zürich, 3.11.2017

SCIENCE

Scientific Committee Annual Report 2017

The Scientific Committee is composed of Shelley Bulling, Marc Pachoud, Stefan Scheib and Raphaël Moeckli.

The committee evaluated the applications for the SSRMP research grant. One application is still under evaluation.

Sheeba Thengumpallil received the Varian prize for an interesting paper published in Radiotherapy and Oncology: "Impact of respiratory-correlated CT sorting algorithms on the choice of margin definition for free-breathing lung radiotherapy treatments".

As in previous years, the different working groups had different levels of activity. I would like to thank all the working group participants for the time that they contributed to our society and to warmly invite anyone who is interested in joining a working group to contact the chairperson of the relevant group. The list of working groups and chairpersons is on our website (www.sgsmp.ch).



Two AMP meetings took place in Bern. The first one (21st of November 2016) was related to shielding and Peter Manser presented the results of a study where "new" treatment delivery techniques were evaluated to find out whether existing bunker construction is suitable for these techniques. He showed that this is the case. The second meeting (21st of June 2017) was dedicated to the validation of the revision of recommendation N° 8 on "Reference Dosimetry of High-Energy Therapy Photon Beams with Ionisation Chambers". The recommendation was accepted with minor modifications. The board now needs to validate the recommendation, and it will probably enter into force on the 1st of January 2018. Special thanks go to Stephanie Tanadini-Lang for having chaired that working group and to all the working group members for their intensive work on that revision.

The 2017 SSRMP intercomparison showed excellent global results (see the report in the Bulletin). I thank Claude Bailat and Thierry Buchillier for this huge work.

The continuing education day 2017 took place in Solothurn on the 27th of October. The topic "Deformable Image Registration" was clearly of interest because more than 70 colleagues came to hear eminent specialists speak about this hot topic. I would like to thank Norbert Klippel and Jean-François Germond for their extensive and indispensable help in the organization of that meeting.

On behalf of the Scientific Committee,
Raphaël Moeckli

Results of the TLDs Intercomparison for Megavoltage Units 2017

1. Introduction

The Institute of Radiation Physics (IRA) in Lausanne has been mandated by the Swiss Society for Radiobiology and Medical Physics (SSRMP) to organize an intercomparison. We took over from the medical physicists of St. Gallen Hospital the organization of these intercomparisons for the gantry driven linacs. The 2017 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. For this time, we focused only on static photon beams.

Twenty-nine institutions took part to the intercomparison with a total of 122 beams checked, including 44 flattening filter free beams (FFF).

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.

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 of 2011, 2013, 2014 and 2016 have been used. 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 TLDs. The slab dimensions are 40 mm x 40 mm x 10 mm. The phantom was placed on Perspex or water equivalent material (at minimum 5 cm). This arrangement is shown schematically in Figure 1. Each slab contains 3 TLD chips located on a circle 5 mm away from the centre.

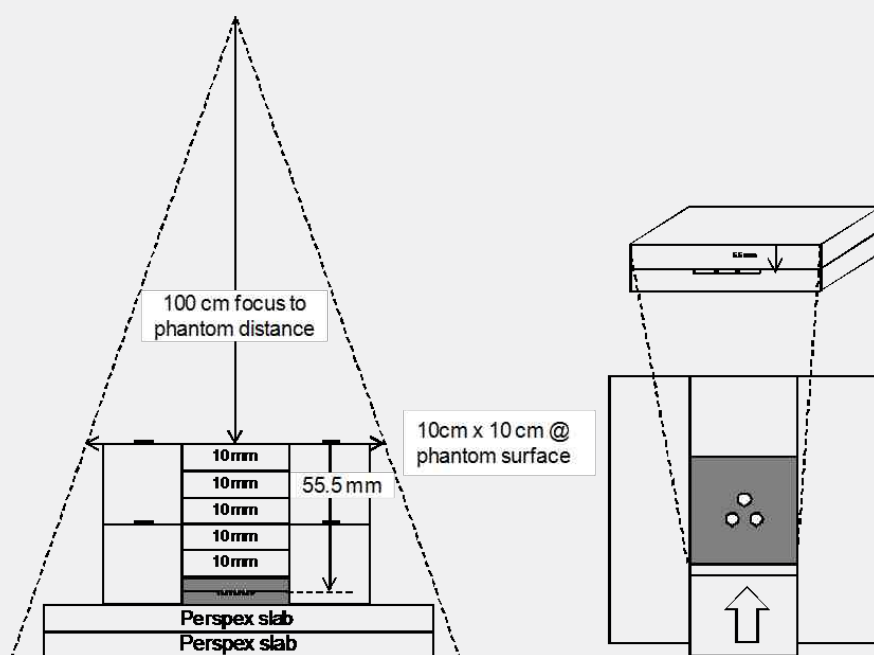


Figure 1. Assembly of the measurement equipment; phantom and (closed) phantom frame

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The measurement depth in solid water was 5.55 cm. 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 our Co-60 irradiation facility, we could use a less time consuming procedure insuring the appropriate metrological traceability. We calibrated the cobalt irradiator available at IRA directly in terms of absorbed dose for a given radiation quality against the reference dosimeter calibrated at METAS. The irradiator calibration was achieved by means of two series of TLD, one irradiated in the solid water phantom at the intercomparison conditions in the 6, 10 and 18 MV beams of the Elekta at CHUV, while the reference value of the absorbed dose was determined with the reference dosimeter in a water phantom in the same geometrical conditions. The other series of TLD were irradiated in the calibration laboratory at IRA for a known time duration. These two series of TLD have been read in a same batch. This provides the link between absorbed dose to water in a water phantom and the exposure time on the irradiator (for each radiation quality). This allows us to prepare reference TLD at IRA for each series of measurements in the participant's beams. The procedure was adopted in agreement with Dr. Ch. Kottler from METAS.

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 was included in the calibration of the Co-60 irradiator. The correction associated to the replacement of the water phantom by the solid water phantom was 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. Four runs of measurements were necessary for the 29 participants. For each one a calibration of all the TLDs was carried out before and after the irradiation of the participants in order to determine the individual sensitivities of all the TLD chips. For each calibration run, a series of 10 TLDs, out of the 50 in each group, were irradiated to the reference dose of 1 Gy at the cobalt irradiator on the same date recommended to the participants. Then these 50 TLDs were all read in a same batch and the dose delivered to every chip was calculated from the ratio of its indication to the mean indication of the references. Finally the corrections mentioned above have been applied.

3. Results

The agreement between the stated dose and the TLD measured dose is examined with the ratio "stated/measured" (noted D_s/D_m). An agreement within 4% is considered a satisfactory result.

The obtained average ratio for the different beam types and energies is given in Figure 2 Left with the standard deviation. This repartition shows that all deviations from the unity can be attributed to statistical fluctuations. The distribution of the D_s/D_m ratio for all the beams is illustrated in Figure 2 Right. The mean value of the D_s/D_m ratio for all the beams is given in Table 1.

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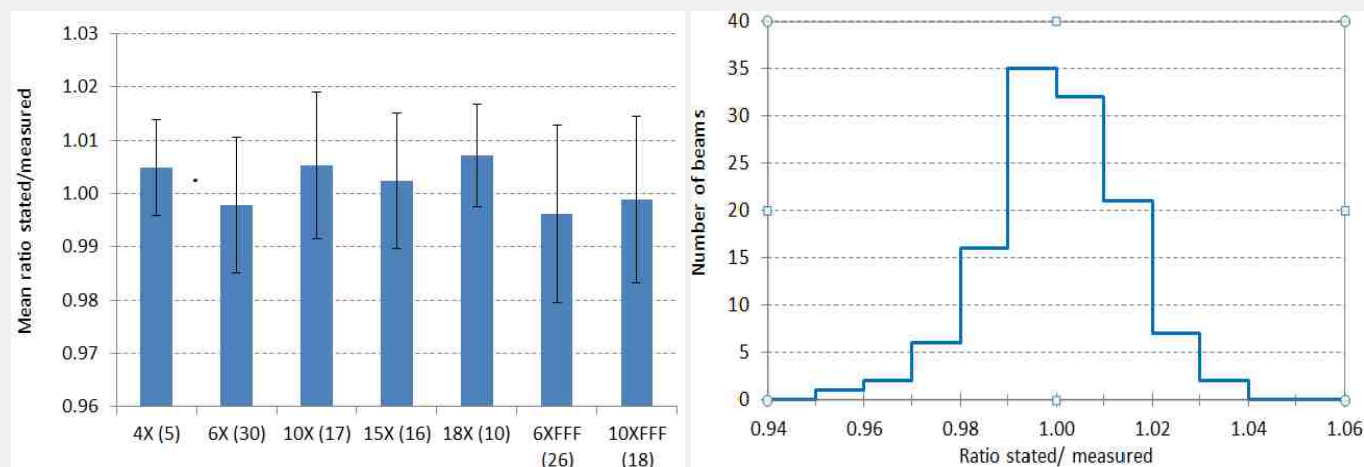


Figure 2 Left. Mean Ds/Dm values for the different radiation qualities. The number of beams is given in brackets. Error bars=std dev.

Figure 2 Right. Histogram of Ds/Dm values for all 122 beams from the 29 institutions

Parameter	FF Beams	FFF Beams	Both types
Beam Number	78	44	122
Mean	1.002	0.997	1.000
Std. Dev.	1.3%	1.6%	1.4%
Minimum	0.971	0.955	0.955
Maximum	1.035	1.027	1.035

Table 1. Ratio "stated /measured dose" (FF=conventional beams with flattening filter, FFF=flattening filter free beams)

The mean value of Ds/Dm for all beams is 1.000. There is only a slight difference between the mean values of Ds/Dm for FF (1.002) and FFF beams (0.997). All results except one are in the interval 0.96-1.04, i.e. within the 4% which is judged satisfactory. Finally 85% of the results are in the interval 0.98-1.02, i.e. within 2%. All participants carried out the reference dosimetry using the SSRMP recommendations No. 8 (or the IAEA TRS-398 protocol).

Uncertainties

The uncertainty on the dose determined using TLDs includes the contributions due to positioning of the phantom in the beam, the read-out procedure of TLDs with all influencing quantities, and the reference in absorbed dose traceable to METAS for the cobalt irradiator at IRA. The uncertainty budget is given in Table 2. 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 measurements TLD over ten reference TLD were analyzed for five irradiations of 400 TLDs. The combined uncertainty was obtained by quadratic summation and amounts to 1.23% for each measurement with a slab containing three TLDs, and 1.16% for the mean of two such measurements. For the expanded uncertainty we adopted only one figure of 2.4% (k=2) for simplicity.

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Effect of volume averaging for the FFF beams

The participants were asked if they corrected for the effect of volume averaging during the reference dosimetry at the beam commissioning. Only 2 of them applied such corrections. The reported correction for a Farmer type chamber was between 1.002 and 1.004 for a 6XFFF beam, and between 1.004 and 1.007 for a 10XFFF beam of a TrueBeam linac.

Contribution	Comment	Std. Unc.
Positioning	± 1 mm	0.2%
Cobalt irradiator calibration	-	1.05%
Stat. fluctuations meas./ref.	type A eval.	0.6%
Non-Linearity	all doses 1 Gy	0.05%
Fading	$t < 3$ days	0.10%

Table 2. Uncertainty budget for the absorbed dose measurement with TLD. The contributions are given at the level of one standard uncertainty.

4. Discussion and conclusion

The results of the 2017 TLD dosimetry intercomparison are good. With only one exception, all the checked beams met the satisfactory criteria of $\pm 4\%$ and 85% being within $\pm 2\%$.

For FFF beams, due to the sharp lateral profile of such beams, we expected a slight underestimation of the dose measured with TLD as the chips are located 5 mm away from the centre and no correction was applied. In fact the results don't show any significant trend in this direction. On average, the dose stated by the participants is only slightly lower than the TLD measurements.

We thank all the medical physicists for their participation. Thanks to their excellent collaboration, we were able to respect the time schedule.

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

SCIENCE

SSRMP new working group dedicated to dealing with the new Radio Protection Ordinance

As approved during the AMP Meeting held in June of this year, a new Working Group (WG 9) has been shown the light within our society. The main goal of WG 9 is to provide some practical guidelines regarding the implementation of the new ordinance on the protection from ionising radiation (RPO). The new RPO will become active starting in January 2018. The leader of the working group is Peter Manser. The first “kick-off” meeting took place in Bern on 23 August and since then the WG 9 has met twice more.

With this report I would like to inform everyone about the main conclusions, or to state more aptly, the main introductory points, established during the 1st brainstorming meeting.

The novelties introduced in the RPO touch different areas within our profession. Therefore, in order to be more efficient and dedicate the needed attention to each of them, during the first 1h of the meeting, we divided in 4 sub-groups: Radiotherapy (RT), Imaging, Nuclear Medicine (NM) and Radioprotection (RP).



The main goal for each of these sub-groups was to pinpoint 3 topics that would require an urgent and immediate reaction (possibly within this year) and to further distinguish eventual less pressing topics that can be dealt with the following year.

During the 2nd part of the meeting, a representative from each group presented their 3 main priorities. As in old schools, blackboards (well... modern schools indeed, since we used whiteboards) were filled with hypotheses and the candidate hot-topics. I don't need to bore you listing which groups set which kind of priority to which topic. As concerns the topics themselves, please refer to the succinct documents which can be found on the BAG website:

<https://www.bag.admin.ch/bag/de/home/themen/mensch-gesundheit/strahlung-radioaktivitaet-schall/strahlung-gesundheit/totalrevision-der-verordnungen-im-strahlenschutz.html>

As for this report, let's jump directly to the winners!

1. Clinical Audits and QA Manual: how can we get ready for them in practice? Which kind of questions should we be ready to answer?
2. Patient dose reports from IGRT: what are we expected to report exactly from a legal point of view? Dose estimation from imaging is not trivial .. on the top of that, keeping track of each and every image and related parameter for each and every patient, while summarizing everything in a final report to be stored in the patients' folder seems to be quite time demanding. Is there an efficient way to do so?

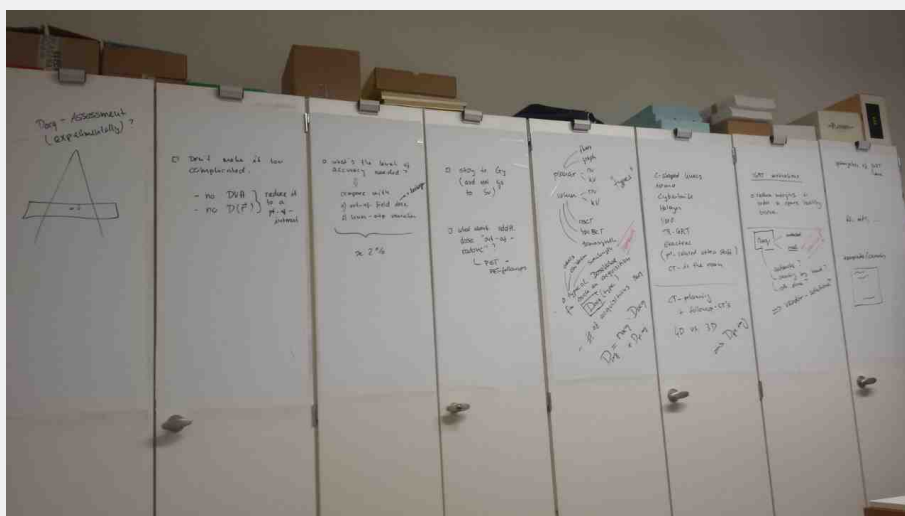
SCIENCE

3. Continuing Education in RP: how can we get the requested 8 hours every 5 years from accredited courses? What does “accredited” mean exactly? Shall these courses be strictly related to our med phys profession? Can they be general RP courses? Who is responsible for setting them up and for providing them?

As you might know the law is quite general and “free for interpretation” and many question marks are hanging on our heads..But... At the end of the day, an active WG was constituted and we started working on that! We are investing our efforts in finding answers to some of these question marks, in coming up with proposals for possible ways to fulfill the new requirements without need to turn our daily workload upside down with new unbearable tasks.

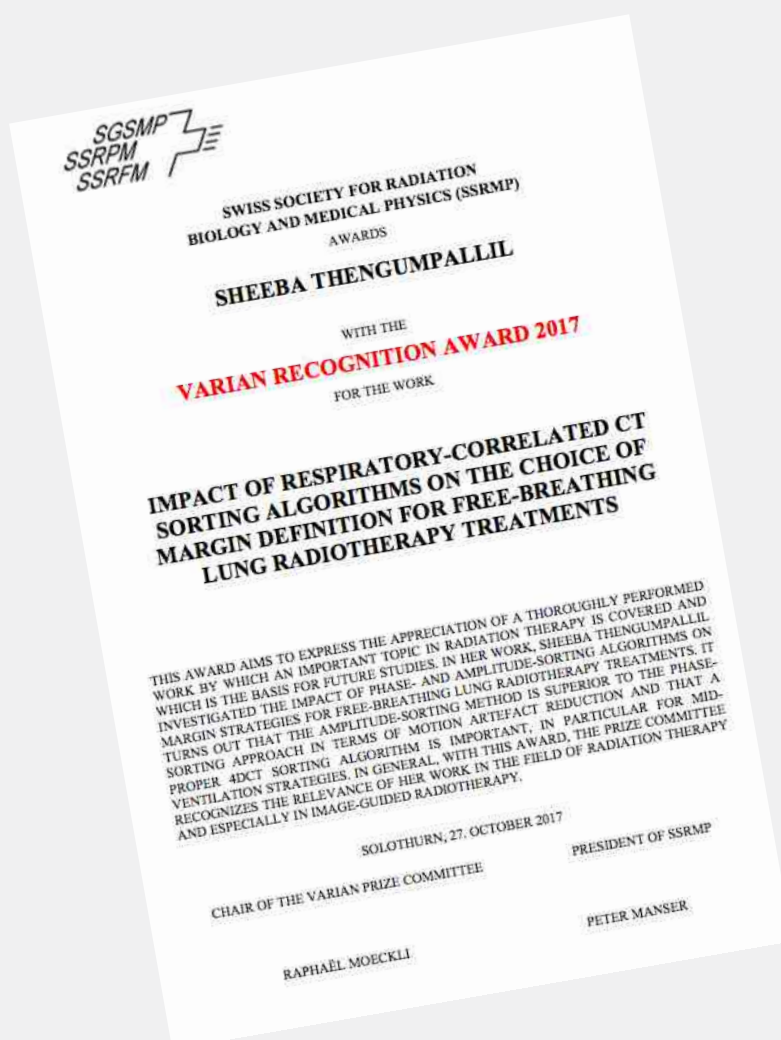
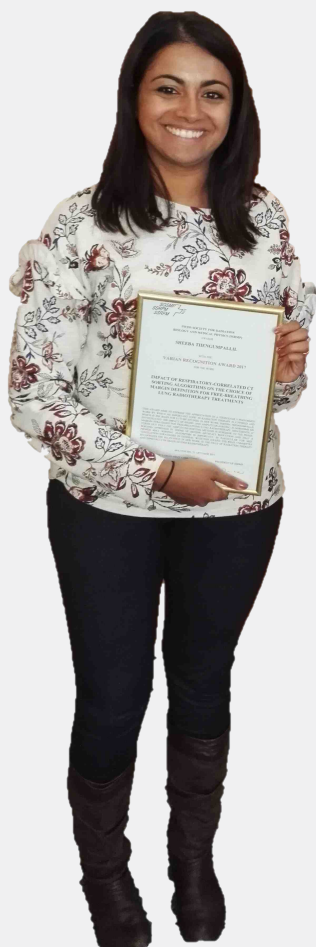
Personally, I am very satisfied of being part of this group. I believe we are working in quite an efficient way (also, splitting up in 3 groups, each of them focused on one of the topics), with “our feet on the ground” and in a very nice collaboration amongst each other. As we say in Italian: the Union makes the Strength.

Francesca Belosi,
PSI



SCIENCE

Varian Award 2017



At the general assembly on the 27th of October 2017 in Solothurn, one paper was awarded with the Varian Recognition Award of Radiation Oncology of SSRMP. We congratulate Sheeba Thengumpallil and thank her for the important work. In addition, we thank Varian Medical Systems for their support.

President of the Varian Prize Committee,
Raphaël Moeckli
IRA and CHUV - Lausanne

SCIENCE

SSRMP Varian Award for Radiation Oncology

Deadline for submission: March 31st 2018

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. donates 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. Members of SSRMP or groups with at least one member of SSRMP are legitimate to attend 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 month 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 2018 and a publication of the Varian prize recipients is then taking place in the SSRMP bulletin and on the SSRMP website.

President of the Varian Prize Committee,
Raphaël Moeckli
IRA and CHUV - Lausanne

SCIENCE

SSRMP Research Grant 2018

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 2018.

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 (preferably via email) to the chair of the SSRMP Science Committee:

Raphaël Moeckli, raphael.moeckli@chuv.ch
Institut de Radiophysique, Rue du Grand Pré 1, 1007 Lausanne

Feedback on the SSRMP Education Course in Nuclear Medicine

Universitätsspital Zürich, 11th – 12th May 2017

SSRMP offers Educational Courses on a regular basis. This course on Nuclear Medicine was specifically designed for Medical Physicists in training and Medical Physicists who are new in the field of Nuclear Medicine.

When I registered for the course I had in mind that the last time I was working in Nuclear Medicine was quite a while ago and then not even in Switzerland. As I am nevertheless doing consulting in institutes that are also active in Nuclear Medicine, I considered this course as a refresher to my knowledge and as a good way to see how things are generally handled in Switzerland. As I know the presenters to have a lot of experience in the field I was confident that the course would bring me valuable insights.

The first day was dedicated to the basic principles and practices in Nuclear Medicine and Hybrid Imaging, including a very interesting introduction by Dr. Francesco Ciccone who talked about the physician's point of view on some aspects of radiation safety and the way doctors can profit from the help of Medical Physicists. This first presentation was followed by different technical aspects of Nuclear Medicine devices and the physics behind Nuclear Imaging as well as descriptions of tasks for the Medical Physicist. This part of the day gave a good overview over the whole field for "beginners" and was a good refresher for more experienced Physicists. Considering the Physicist's task of optimization of dose to the patient there was also a focus on patient dosimetry and Diagnostic Reference Levels.

While the first day was mostly theoretical, the second day of the course focused on practical matters. There were basically three different topics for this day: Radioprotection, internal radiotherapy dosimetry and PET image quality assessment.

During the first topic the calculation of structural radiation protection when planning a Nuclear Medicine department was presented. As the way of calculation for hybrid imaging is not very clearly defined, this resulted in interesting discussions. Also the planning of a radiotherapy ward with its waste handling and structural design was presented. Following the theoretical part we were able to see the University Hospital's own radiotherapy ward and see the different systems in action.

After this we were given an introduction to internal radiotherapy dosimetry and the planning of internal radiotherapy, after which we could also try to use the planning software used at the hospital.

The afternoon of the second day was dedicated to image quality tests in PET. Unfortunately we were not able to use the PET scanner to acquire our own phantom images as the device was in constant use. Therefore we tried to do the calculations based on example images, which also proved quite useful, as this was for most of us probably the first time doing this kind of calculation.

I did enjoy the two days of the course, especially the second day with the different practical examples. Even though I already had some experience in the field of Nuclear Medicine I gained some new insights and I will gladly recommend the course to every "beginner" in Nuclear Medicine.

If I would have to think of something that could still be improved I would recommend to keep the theoretical part a bit shorter and allow for a little more time for the practical exercises.

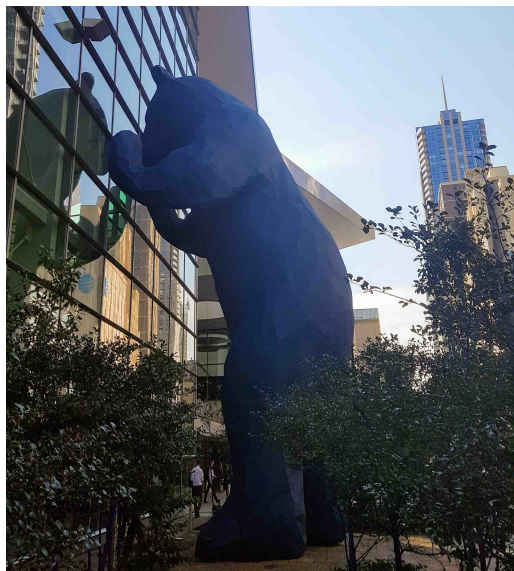
Last but not least, I want to thank the team of lecturers for the well prepared talks and the motivation to do such a course!

Yvonne Käser, Medical Physicist SSRMP, PhysMed Consulting GmbH

Conference Report: AAPM annual meeting 2017

July 30th – August 3rd, Denver, CO, USA

This year's annual meeting of the American Association of Physicists in Medicine (AAPM) was the 59th of its kind and was hosted by the city of Denver in the Colorado Convention Center. Constantly supervised by the oversize blue bear peeking into the convention center, the attendees presented their work and exchanged their knowledge. Representatives of dozens of vendors showcased their newest products in



the vast exhibition hall. The organization committee set the focus of the conference to further unite our profession and bring medical physicists together, hence the theme of this year's meeting: "Connecting our Pathways. Unifying our Profession".

This theme was elaborated in the President's symposium, which focused on the versatile challenges of a medical physicists within diagnostic imaging, radiation oncology and industry, today and in the future. Another keystone of the conference was the promotion of the AAPM initiative Medical Physics 3.0 (MP3.0), which aims to define and practice sustainable excellence in medical physics with the four cornerstones expertise, visibility, sustainability and expansion.

As for the scientific content, the recent excitement in the field of MR guided radiotherapy with the commercial release of the first integrated MR-Linac systems was covered in multiple sessions, emphasizing the various challenges arising with these new devices. The procedures of commissioning, planning, dose calculation and quality assurance must be reassessed and adapted in the presence of a strong magnetic field of an MRI bore. Medical physicists facing these new challenges were informed in a designated professional symposium entitled "MR in RT: Professional Requirements for Physicists in MRI Guided Radiation Therapy".

A noticeable aggregation of scientific contributions could be observed in the field of machine learning. While machine learning has gained broad attention primarily in the IT-related sciences over the last decade, it seems now to be the time that many researchers in our field are focusing their interest to the potential and capabilities of computer based knowledge. The main idea is to harvest the seemingly boundless data pool of information and refine it to improve, simplify and accelerate various tasks in medical physics. The potential applications span from image analysis, including radiomics, to contouring to treatment planning and optimization to quality assurance tasks. It will be exciting to follow the developments in this area, as so-called big players from the IT world also seem to be pushing into the field of medical physics.

A sincerely emotional session, devoted to the Future of Precision in radiotherapy, was dedicated to the recently deceased Michael B Sharpe. Colleagues and companions of Dr. Sharpe remembered him as a passionate, skeptical and committed character influencing the field of Medical Physics over decades. The speakers covered IMRT optimization, the development of cone beam CT but also the current trajectory of personalized adaptive radiotherapy.

Despite the remarkable distance of 8300 km, a noticeable Swiss delegation found their way to Denver. Researchers from numerous institutions all over Switzerland presented their work in the form of posters, e-posters and scientific talks.

Issues Of Interest

Worth highlighting is the contribution of Silvan Müller from Inselspital Bern, whose abstract was one of five to be acknowledged in the “Best in Physics - Therapy” category, allowing him to present his work on dynamic trajectory mixed beam radiotherapy (DT-MBRT) in a scientific talk as well as a designated e-poster session. The approach of his project was to exploit all degrees of freedom of a conventional linear accelerator to improve plan quality for clinical cases with both superficial and deep-seated parts of the target volume. In the optimization process, not only intensity modulation using the photon multi leaf collimator (pMLC) and optimizing the track of a photon trajectory by dynamic gantry collimator and couch rotation during beam-on is allowed, but also adding pMLC collimated electron fields with different energies to cover the more superficial part of the target.

Attending the AAPM annual meeting was a thoroughly stimulating experience and we look forward to the next annual meeting in 2018, which will take place July 29th to August 2nd in Nashville, Tennessee.

Reto Küng, Inselspital Bern



Silvan Müller, PhD student at the Division of Medical Radiation Physics at Inselspital Bern, presenting his "Best in Physics" awarded project on the combination of modulated electron beams

EFOMP council meeting report

The European Federation of Organisations in Medical Physics (EFOMP) was founded in May 1980 in London to serve as an umbrella organisation for medical physics societies in Europe. The current membership covers 34 national organisations which together represent more than 8000 medical physicists and clinical engineers working in the field of medical physics. The governing body of EFOMP is its Council which consists of representatives of the National Member Organisations (NMOs), and it meets annually. This year the Council meeting has been held in York, UK, on September 11.

EFOMP President's review

Prof Damilakis wanted to focus on the main activities during his 3-year term, as this would shortly come to an end. He detailed the main goals and achievements from the ECMP, EEB, and the setting up of EBAMP. He highlighted EFOMP's successful involvement in EU projects; the development of Policy Statements, the new EFOMP website and the success of EFOMP's publications. All of this had been achieved with the help of Council and the NMOs.

Prof Damilakis reiterated the importance and success of relationships with other societies. He highlighted the Memoranda of Understanding that were in place, including the recent MoU with COCIR, and also the good relationships with other societies – EFOMP's involvement in ECR 2017 and 2018, with reduced registration fees being applied for Medical Physicists; involvement with AAPM; IAEA including conferences and meetings; and IOMP – involvement in the International Day of Medical Physics on 7 November 2017, and new contributions to IOMP books; MELODI and EURAMED to be launched still in 2017.

While many of the matters would be discussed in more detail during the meeting, Prof Damilakis summarised EFOMP's current committee activities.

ECMP 2018 in Copenhagen

The congress would also comprise of the following: the ESMPE Summer school; the 2nd examinations of the EEB; satellite meetings; company symposiums and other parallel events. The "Welcome Nation" would be Germany and would host and organise 2 scientific sessions and a refresher course. All abstracts would be published in the EJMP, which would also publish a 'focus' issue of up to 40 full papers.

Professional Matters

National Registration Schemes: A new application form for the certificate of approval for national registration schemes has been prepared and it will be presented to the delegates.

European Examinations Board: Prof Damilakis outlined the aims of the EEB and its activities to date including the introduction of European Diploma of Medical Physics (EDMP) and the European Attestation Certificate to those medical physicists that have reached the MPE level (EACMPE). He explained that EEB organized its 1st examinations for the EDMP and the EACMPE in the field of diagnostic and interventional radiology during the

ECMP

European Congress of Medical Physics

EEB

European Examinations Board

EBAMP

European Board for Accreditation in Medical Physics

COCIR

European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry

MELODI

Multidisciplinary European Low Dose Initiative

EURAMED

European Alliance for Medical Radiation Protection Research

ESMPE

European School for Medical Physics Expert

EJMP

European journal of Medical Physics

EDMP

European Diploma of Medical Physics

EACMPE

European Attestation Certificate for MPE

Issues Of Interest

ESMPE Summer School in Prague, July 6-8, 2017. The next examinations would be in Copenhagen prior to the **ECMP** in August 2018.

Scientific Committee

Working Group to produce an EFOMP Policy statement on “Artificial intelligence and deep learning in medical imaging and in relation to medical physicist profession”.

Education and Training activities

ESMPE in Prague, with the next school in Jan 2018, and the summer edition in Copenhagen, along with the next **EEB** examinations; the initial work of **EBAMP** (EEB). Presentation of ideas concerning the sharing of teaching resources.

EU Projects

Presentation of the ongoing impact and involvement in **EUTEMPE-RX** project and the resulting network set up for activities and modules. The challenge is to guarantee an ongoing support and the need for representation for all countries.

There was a new opportunity for EFOMP, as a shareholder in **EIBIR**, to participate in the Euramed platform. There was also the involvement in new projects – **MEDIRAD** – kick off June 2017; **ENEN+** – kick off in October 2017. There had been the successful completion of the **MESTRA** project (BSS implementation for the medical sector), one outcome from which is a proposal to Council to produce a new EFOMP Policy Statement – “The Role and Competencies of the MP/MPE under 2013-5-9EURATOM”.

Publication and Communications

The EFOMP EMP News, the European journal of Medical Physics (EJMP) and the improving impact factor; the new EFOMP website.

EFOMP Awards

Honorary Membership to Prof W Schelegel and Certificates of Appreciation to 6 EFOMP past officers.

ESMPE

European School for Medical Physics Expert

ECMP

European Congress of Medical Physics

EBAMP

European Board for Accreditation in Medical Physics

EUTEMPE

European Network for Training and Education of Medical Physics Experts

EIBIR

European Institute for Biomedical Imaging Research

MEDIRAD

Implications of Medical Low Dose Radiation Exposure

ENEN+

Attract, Retain and Develop New Nuclear Talents Beyond Academic Curricula

MESTRA

MEdical Sector TRAnsposition

Some useful links:

EFOMP website - <https://www.efomp.org/>

ESMPE	European School for Medical Physics Expert	See EFOMP website -> Education
EEB	European Examinations Board	See EFOMP website -> Education
EACMPE	European Attestation Certificate for MPE	See EFOMP website -> Education -> EEB
EDMP	European Diploma of Medical Physics	See EFOMP website -> Education -> EEB
EJM	European journal of Medical Physics	See EFOMP website -> Publications
EMP News	European Medical Physics News	See EFOMP website -> Publications
ECMP	European Congress of Medical Physics	See EFOMP website -> Science

Issues Of Interest

COCIR	European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry http://www.cocir.org/
EBAMP	European Board for Accreditation in Medical Physics http://www.ebamp.eu/
EIBIR	European Institute for Biomedical Imaging Research http://www.eibir.org/
ENEN+	"Attract, Retain and Develop New Nuclear Talents Beyond Academic Curricula" http://www.enen.eu/en/projects/enenplus.html
EURAMED	European Alliance for Medical Radiation Protection Research http://www.eibir.org/scientific-activities/joint-initiatives/european-alliance-for-medical-radiation-protection-research-euramed/
EUTEMPE-NET	European Network for Training and Education of Medical Physics Experts http://eutempe-net.eu/
MEDIRAD	"Implications of Medical Low Dose Radiation Exposure" http://www.eibir.org/projects/h2020-projects/medirad/
MELODI	Multidisciplinary European Low Dose Initiative http://www.melodi-online.eu/
MESTRA	MEdical Sector TRAnsposition http://www.eurosafeimaging.org/bss-transposition

SSRMP Continuous Education Day

October 27th, Solothurn

This year the SSRMP continuation Education Day took place at the Bürgerspital in Solothurn on 27th October 2017. The station seemed to be a meeting point for colleagues arriving from the many corners of Switzerland, so we could catch up and enjoy the sunny walk to the hospital, where we were welcomed with coffee and gipfeli before the meeting started. The topic for the day was “deformable image registration”. Raphael Möckli organised the programme with national and international experts presenting various aspects of the registration challenge and from different viewpoints. Norbert Klippel took on the local organisation, providing a perfect venue and ensuring our stomachs were well cared for.

The interest in the Continuation Education day was high with about 70 people (a third of our members) registering for the day. To get a little prior background information on the present use of deformable image registration (DIR) in Switzerland, a questionnaire was sent out to the 29 Swiss radiotherapy centres. Of the 17 centres responding:

- 53% do not use DIR
- Of those that do use DIR, 75% do not do QA of DIR
- If QA is done it is most likely to be restricted to a visual inspection

So this set the scene nicely for a day of learning when, why and how we should, or should not, use DIR. And if we do use it, how we might QA it?

Mahmut Ozsahin, Associate Professor from the department of radio-oncology in CHUV started the day with presenting role of deformable image registration from a radio-oncologist's viewpoint. He gave a high speed and enthusiastic overview, with examples of many possible areas and uses:



- Automated propagation of physician-drawn contours to multiple image volumes
- Re-irradiation (about 20% of the patients at CHUV present requiring re-irradiation)
 - Using DIR (of previous treatment plan and new planning CT) to create new constraint structures for dose-optimisation in VMAT planning
- Adaptive RT
 - Using CBCT with deformable registration to assess the CTV and OAR coverage with time and establish the requirement for re-planning. Especially when using a SIB concept, changes in the patient geometry over time, could result in large discrepancies in the planned and received dose unless re-planning is done at the right time.
- Evaluation of treatment outcome
- Functional imaging and more

So, he left us all wanting to dust out DIR tools and get started. And as Mahmut summed himself up: “a great believer in DIR, but also a bit of a doubter in the end”.

Issues Of Interest



Stefan Klein, (associate-professor in medical image analysis in the Biomedical Imaging Group at Erasmus Rotterdam) presented some mathematical aspects of deformable image registration. Registration, as we know, is basically an optimisation, one of minimising a given cost function. To make us, as medical physicists working in Switzerland, feel more at home in his rather mathematical world, he compared the registration problem to optimising a walk in the Swiss Alps (gradient descent). And he explained some methods to speed up the descent, by taking smarter steps, cheaper steps, or adapting the step size (stochastic gradient descent). In this way, the topic was made assessable and many visual demonstrations were used throughout to illustrate the use of the mathematical models.

We were also introduced to *elastix*: an open source software for rigid and non-rigid registration of medical images.

For more info see <http://elastix.isi.uu.nl>. If you are interested in more information on this topic, Stefan is hosting a workshop in Leiden, Netherlands in June 2018. (8th International Workshop on Biomedical Image Registration) - <https://wbir2018.nl>.

After a coffee break, Christine Tanner from the Computer Vision Lab at ETH talked about Quality assurance of DIR: why DIR is not straightforward, and why QA of it is similarly complex. The tools we might think of using to assess the DIR, may, also be those we use to perform the optimisation, thus not making them an independent tool.



We were introduced to CURT, “Completely Useless Registration Tool”. A registered image can look deceptively good and perform well in terms of certain surrogate measures of registration performance, such as tissue overlap and image similarity, despite being an algorithm that generates highly inaccurate image transformations. So other methods of evaluation of DIR accuracy are needed. For example:

- o Visual inspection, however, this is rather labour intensive, can be rather subjective and at the end of the day we may still miss something. And, of course, it is definitely not physicist friendly; we want to have a number at the end, where we can say it's in or out of tolerance.
- o Segmentation overlap - should help to rule out implausible registrations
- o Target registration Error and using pre-defined landmarks
- o Physically plausible ground truth motion

Ideally all commercial DIR providers should provide some QA measure allowing the quality of each registration to be assessed. DIR – lab challenge <https://www.dir-lab.com/index.html> - provides a set of reference standard data sets for objective and rigorous evaluation of deformable image registration (DIR) spatial accuracy performance.

Issues Of Interest



Jean-Francois Germond, (who is retired and just recently become Grandfather again) had the task of summarising the most important details of the AAPM recommendations of the TG132. This could perhaps be seen as a somewhat dry topic, but not with Jean-Francois' humour and combination of historical and futuristic anecdotes to keep us going before lunchtime.

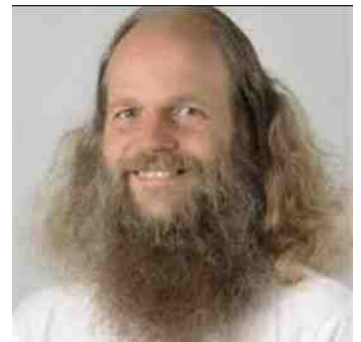
After an introduction to the report, he went on to categorise the methods for validation and quality assurance of DIR, starting with category 1 "psycho-physics" or visualisation methods that use our brain as a (trainable) detector. These may sometimes be referred to as qualitative validation, not the physicists typical comfort zone. The next category includes various quantitative methods (target registration error, Jakobian determinant, mean surface distance between contours and other metrics where numbers and tolerance levels can be quoted

making the medical physicist feel more on home ground), then the final category, the physicists favourite, with tests using either digital or physical phantoms. The TG132 does propose a scheme for working, but to the question of is it practical to implement, the answer would probably be, "no".

To finish off the day Marcel van Herk, head physicist of Christie Hospital in Manchester, gave us a bit of a reality check – where can DIR be used safely in the clinical setting and where is caution needed?

He showed many useful clinical examples and the highlight, perhaps, "Marcel's Sunday morning filling bladder MRI" to compare the bladder with a balloon and demonstrate the problem of sliding tissue, (which cannot "yet" be dealt with by DIR). Image registration doesn't know about biology and biomechanics and so cannot cope adequately with sliding tissues, tumour growth and regression or weight loss.

In summary, it might be ok to use DIR for pretty pictures at conferences etc. and also to propagate HU and OAR contours, but it is not yet ready for dose accumulation.



DIR remains an unsolved problem, but work is going on towards faster and more robust methods.

Nicoletta Lomax, Medical Physicist
Radio-Onkologie KSA-KSB, Kantonsspital Aarau

New SSRMP Bulletin section: PhD platform!

The Editorial Team would like to initiate a new series of articles for the upcoming issues - along the same lines as for the SpotLightOn and Personalia sections.

- What we offer: a "blank page" dedicated to PhD students for presenting their work and most importantly themselves within our community of medical physicists
- Why: your work and your profile might be of interest within our local community e.g. to fill a position, or be on a favorite topic of another colleague who might like to talk with you!
- How to present your work: with a brief abstract describing the purpose and results of your project
- How to present yourself: answering to a short written friendly interview. e.g. what motivated you to choose this topic? What are the challenges? What have you enjoyed or found frustrating so far along your PhD path?

If you are a PhD student (or if you have one in your group) approaching the end of the project, we invite you to share with us a short description of your thesis, and most importantly a bit about yourself, so that your future wider community of medical physics colleagues and friends can start to get to know you.



Please get in touch with us and make use of this new space in the SSRMP Bulletin.

On behalf of the editorial team,
Francesca Belosi, francesca.belosi@psi.ch



University Hospital of Basel

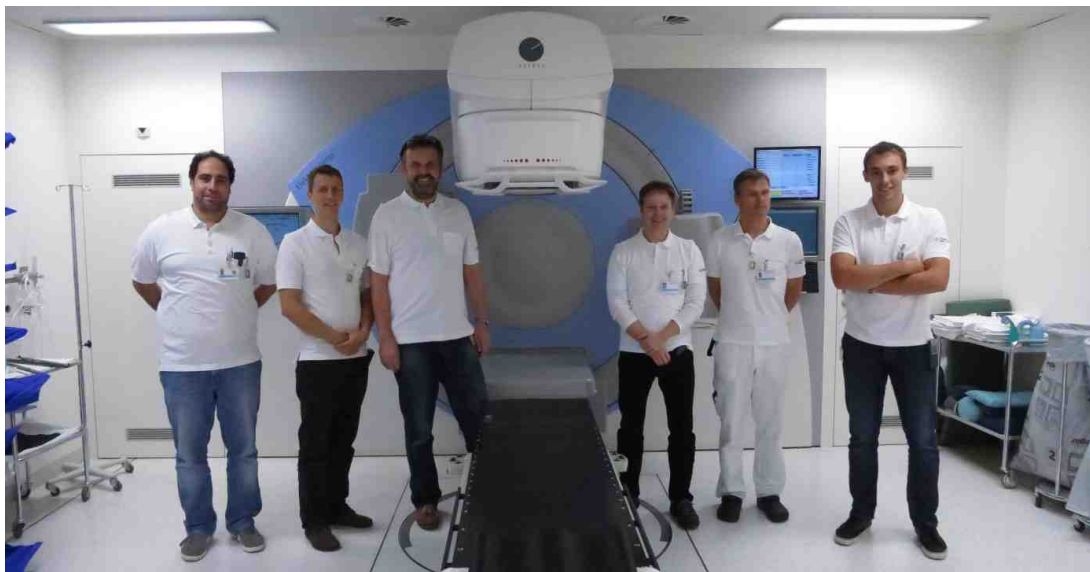


Photo of the Physics Team from left to right: Yasar Avcu, Michael Baumgartl, Harald Petermann, Patrick Powell, Götz Kohler and Nicolas Hanauer

The history of the University Hospital Basel (Universitätsspital Basel, USB) goes back to the middle ages, known as “Bürgerspital”, mentioned as early as 1265. However, its modern history started in 1842 when it moved to the current location and modern treatment concepts with new facilities have been established.

The first Co60 machine in Switzerland was installed at the USB by Prof. H. Lüthi, a self-made device, improving the dose distributions in comparison to former conventional X-ray-machines. Later in 1974, Philips mounted an 8 MV linac in the just now independent radio-oncology department of the Universitätsspital Basel. Evolution in intensity modulation started by using custom-made bolus.

Since then, the clinic has continued to grow, now taking care of patients of the northwest part of Switzerland and also of patients of southern Baden-Württemberg, making currently around 1300 patients per year treated at two separate and independent locations – one in Basel, one in Lörrach (Germany). At present, we have 3 Elekta Synergy linacs equipped with the Agility MLC, CBCT and EPID. Photon energies are 6 and 10MV, and electron energies range from 6MeV to 15MeV.

Spotlight On

Beam characteristics of all the linacs are matched in such a way that patients can be interchanged between the linacs. An equivalent and matched linac has been installed at the subsidiary of the USB in Lörrach. Their patients are routed to the USB in case of repair work or a technical fault, or for brachytherapy and conventional radiation therapy. Two physicists from our team are regularly working in Lörrach.

The fast and accurate Agility head is not only used for advanced treatment techniques such as VMAT, but also allows us to perform stereotactic treatments of tumors of the brain and body. All plans are calculated on 4 Monaco TPS working stations from Elekta.

Aside from the megavoltage therapy, kV-therapy with an X-Strahl RT100 ranging from 12kV to 100kV is also offered to patients, either conducted by our physicians or by colleagues of the dermatology department at the USB. We take care on the tasks in radiation protection and quality assurance in both cases.

In addition, afterloading is offered to 30 to 40 patients per year, being referred to us from physicians within a radius of about 30 km, also from Germany. Mostly gynaecological, but also oesophageal and lungs cancers are treated. This is done with a Nucletron HDR afterloader (Ir-192 source).

Aside from these standard radiotherapy treatments, we also offer special treatments such as Total Body Irradiation, which has been conducted for a number of decades with more than 1000 treated patients in total, Extracorporeal Bone Irradiation in cooperation with the UKBB (children's hospital), and Total Skin Electron Irradiation which only occurs once in a couple of years.

In the short-term future, we plan to introduce IntraOperative Electron Radiotherapy for treatments of breast, abdominal and pelvic tumors.

Ceux qui veulent nous rendre visite sont naturellement les bienvenus!

Wer uns besuchen will ist natürlich herzlich willkommen!

Nicolas Hanauer, SSRMP Medical Physicist
Universitätsspital Basel

“People on the move”

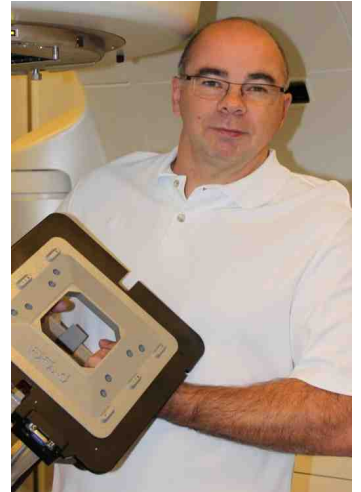
Peter Egli

Dreizehn Jahre lang habe ich am KSA bzw. am Radio-Onkologie-Zentrum KSA-KSB meine Spuren hinterlassen. Als Quoten-Schweizer durfte ich in einem internationalen und interdisziplinären Physikteam mitarbeiten. In diesen spannenden Jahren wurde Aarau zuerst eine Siemens Clinic of Excellence. Nach der Ankündigung von Siemens, den Geschäftsbereich Linearbeschleuniger zu vernachlässigen, wechselte die Klinik zu Varian. D.h. Umbau und Inbetriebnahme drei neuer Linearbeschleuniger, zwei neuer Therapieplanungssysteme Eclipse und iPlan (BrainLab) und eines neuen Siemens CTs (wenn schon denn schon). Die Oberflächen- und Tiefenhyperthermie, die Brachytherapie und ein Oberflächentherapiegerät rundeten das Betätigungsfeld in Aarau ab. Als Zückerchen durfte ich die Erweiterung mit einem Linearbeschleuniger am Kantonsspital Baden in Betrieb nehmen.

Nach so vielen Jahren verlasse ich Ende Jahr das Zentrum KSA-KSB und darf 2018 am LUKS eine neue Herausforderung annehmen. Der Gerätepark der Luzerner Radio-Onkologie entspricht etwa Aarau. Ich freue mich auf ein neues, motiviertes Physikteam und auf neue Aufgaben. Es wird spannend, die Zusammenarbeit zwischen den verschiedenen Berufsguppen, die unterschiedlichen Philosophien und Abläufe des Luzerner Institutes kennenzulernen.

Ich bedanke mich bei Gerd Lutters und dem ganzen Physikteam KSA-KSB für die Unterstützung und Freundschaft in den letzten dreizehn Jahren und in der Zukunft.

Peter Egli



Editorial staff and Information

Impressum

Editors

Francesca Belosi
Proton Therapy Center
Paul Scherrer Institut
5232 Villigen
056 310 37 45
francesca.belosi@psi.ch

Nathan Corradini
Clinica Luganese
Centro di Radioterapia
6900 Lugano
091 960 81 28
nathan.corradini@clinicaluganese.ch

Shelley Bulling
Centre d'Oncologie des Eaux-Vives
26 rue Maunoir
1207 Genève
022 319 77 30
sbulling@eaux-vives.com

Jean-Yves Ray
Service de radio-oncologie
Hôpital de Sion
Av. Grand-Champsec 80
1951 Sion
027 603 45 12
jean-yves.ray@hopitalvs.ch

Web Editor

Jean-Yves Ray
Service de radio-oncologie
Hôpital de Sion
Av. Grand-Champsec 80
1951 Sion
027 603 45 12
jean-yves.ray@hopitalvs.ch

SSRMP Secretary

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

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Call for Authors

Also, you are 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 a MS Word document via email to one of the editor addresses above.

Deadline for submissions to Bulletin No. 91 (01/2018): 03.2018

SSRMP Board

Board members

Dr. sc. nat.	Peter Manser President peter.manser@insel.ch	Abteilung für Medizinische Strahlenphysik Inselspital - Universität Bern 3010 Bern	031 632 37 71 031 632 24 29 031 632 21 11
PD MER Dr.	Raphaël Moeckli Vice President Chair Science Committee raphael.moeckli@chuv.ch	Inst. Univ. de Radiophysique (IRA) Rue du Grand-Pré 1 1007 Lausanne	021 314 46 18 021 314 80 68
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
Dr. rer. nat.	Frédéric Corminboeuf Chair Education Committee f.corminboeuf@lasource.ch	Centre de Radio-Oncologie Clinique la Source Av. Vinet 30 1004 Lausanne	021 642 70 00
MSc.	Jean-Yves Ray Chair Professional Affairs jean-yves.ray@hopitalvs.ch	Service de radio-oncologie Hôpital de Sion Av. Grand-Champsec 80 1951 Sion	027 603 45 12 027 603 45 00
MSc.	Yvonne Käser yvonne.kaeser@physmed.ch	PhysMed Consulting GmbH Kleindorfstrasse 12a 8707 Uetikon a. S.	079 453 99 02
Dr. med.	Markus Notter markus.notter@lindenhofgruppe.ch	Radioonkologie Lindenhofspital Bremgartenstrasse 117 3001 Bern	031 300 95 11 031 300 88 11 031 300 86 99
Dr.	Stefano Presilla stefano.presilla@eoc.ch	Ente Ospedale Cantonale Servizio di Fisica Medica Viale Officina 3 6501 Bellinzona	091 811 91 84

Conference Calendar

CALENDAR 2018

- February 28**
Vienna, AT
ECR 2018 European Congress of Radiology
February 28 - March 4
<https://www.myesr.org/congress>
- March 11**
Pichl, AT
Winterschule Pichl für Medizinische Physik SGSMP-DGMP-ÖGMP
March 11 - March 23
<https://www.winterschule-pichl.de/>
- March 12**
Lausanne
EUTEMPE - Mathematical model observers developed and implemented for patient dose optimization in CT
March 12 - March 16
<http://eutempe-net.eu/mpe08/>
- April 20**
Barcelona, ES
ESTRO 37 Barcelona
April 20 - April 24
<https://www.estro.org/congresses-meetings/items/estro-37>
- June 3**
Prague, CZ
World Congress on Medical physics & Biomedical Engineering
June 3 - June 8
<http://www.iupesm2018.org/>
- June 13**
Toulouse, FR
57èmes Journées Scientifiques de la SFPM
June 13 - June 15
<https://sfpm-js2018.sciencesconf.org/resource/page/id/2>
- June 16**
Paris, FR
International Society for Magnetic Resonance in Medicine Annual Meeting
June 16 - June 21
<https://www.ismrm.org/>
- July 29**
Nashville, USA
60th Annual Meeting AAPM
July 29 - August 2
<https://www.aapm.org/meetings/>
- August 23**
Copenhagen
2nd European Congress of Medical Physics
August 23 - August 25
<http://ecmp2018.org/>
- November 22**
Lausanne
52nd SSRMP Annual Meeting
<http://ssrpm.ch>



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!