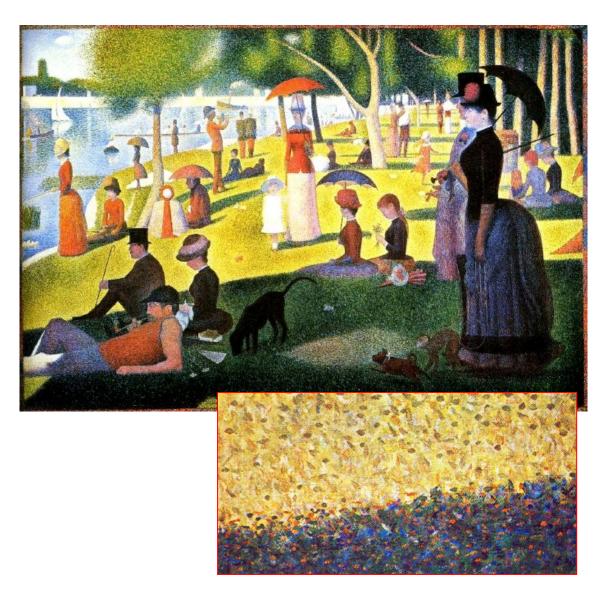
SGSMP Z SSRPM Z= SSRFM



BULLETIN 2/2016

Nr. 86 August 2016

Online Bulletin: http://www.sgsmp.ch

BULLETIN 86

August 2016

•	SSRMP News	
	President's letter	2
	New SSRMP Front Page	4
•	Issues of Interest	
	MIP Working Group meeting minutes	6
	Report on AAMP-ISEP/FAMPO Diagnostic Imaging Symposium	8
	Report on ESTRO Course:	10
	"Implementation and practice of image-guided stereotactic body radiotherapy	v "
•	Conference Calendar	11
•	Spotlight on La Source	12
•	Editorial staff and information	14
•	SSRMP Roard	15

Cover images:

Pointillism master Georges Seurat's painting "A Sunday Afternoon on the Island of La Grande Jatte" with an inset close-up of its point detail.

The field of Radiomics has emerged with a force and its large presence at the AAPM annual meeting this year is testament to its widespread interest and on-going research. Like pointillism, Radiomics lays bare and highlights the details in medical imaging, identifying underlying patterns of a much larger picture. Will Radiomics help us understand the larger picture of cancer and its treatment?

Read more:

PMB paper (open access): http://iopscience.iop.org/article/10.1088/0031-9155/61/13/R150
Nature paper (open access): http://www.nature.com/ncomms/2014/140603/ncomms5006/full/ncomms5006.html#affil-auth

President's letter

Dear colleagues,

Together with SASRO we are jointly having our annual meeting in Sursee by the end of August. It's a good coincidence that both societies can celebrate some kind of "anniversary": While SSRMP is organizing its 50th meeting already, our colleagues from SASRO are having their 20th meeting, for which I would like to congratulate with great pleasure. SASRO has done a remarkable job over the last 19 years and certainly is one of the closest and most important partners of SSRMP.

Thinking back over the last 20 years, I realize that a lot of clinically relevant improvements could be achieved within this time period and it's definitely worth having in mind that our involvement as a medical physics and radiobiology society was and still is of great importance. Wasn't it the medical physics community, which invented techniques like inverse treatment planning, intensity modulated radiotherapy, and image guidance radiation therapy? Who else than the medical physicists was predominantly in charge to define suitable strategies and clinical workflow procedures in order to guarantee the safety of patients for these kinds of complex treatments? For the above mentioned examples - which are commonly seen as major milestones in modern radiation therapy - our involvement as medical physicists was huge, direct and of great relevance. On the basis of clinical needs, medical physicists were thinking of how to take advantage of technical progresses. For sure, our role was not only limited to fulfilling quality assurance tasks or doing measurements during late night shifts. In contrary: it was due to our fundamental understanding of physics, our technical knowledge and our skills of mathematical modeling, why all these advancements could be realized. And, of course, it was also our natural curiosity which caused us to think: "let's try to do it better."

As an example, the problem of inverse treatment planning is mathematically related to the principles of image reconstruction and in the late 90's, we were aiming to exploit the very familiar methods of filtered backprojection in order to calculate the fluences needed for IMRT deliveries. Afterwards, in order to get rid of the unphysical (lower than zero) intensities, numerical optimization was used and cost functions – some of them were purely physics based while others included biological modeling – had to be minimized using computer algorithms with the still significant support of treatment planners. Currently, a number of medical physics research groups are actively working on additional aspects like automatic treatment planning, efficiency gains in dose computation and dose optimization, knowledge-based treatment planning and robustness optimization.

You see: the mission is not accomplished, yet. Research and development in our field are still very active and prominent. And again, also for these new developments we have to act actively and directly in order to transfer our physics skills into improvements of patient treatments. For me, it's clear that SSRMP plays an important role in all these subjects. It's actually essential and also very motivating to recognize that there are scientific challenges and that inspiring problems wait for their solutions. That's where we have to see our opportunities and that's generally why we are needed as an academic discipline. I am personally convinced that it's not only quality assurance or the sub-millimeter measurement of a dose distribution, which are important. It's also our contributions to other aspects in daily practice of a clinic such as influencing the entire way of thinking. We can trust on our analytical skills, our ability of critical thinking and our physics instincts and apply them in clinical routine. Physics meets medicine at this moment, and great things can evolve if all stakeholders are collaborating with each other.

Certainly, we have to educate physics students to make use of their fundamental talents as physicists. It is our duty as a community to prepare the floor accordingly and to give them the opportunities to progress. Of course, this means that they have to work in a clinical environment and that they have to be confronted with all the daily aspects of routine work. However, we also have to remind that if our community as medical physics aims to optimize and improve the use of radiation for both diagnostic and therapeutic applications, then it is also essential to train the young physicist for being active in research activities.

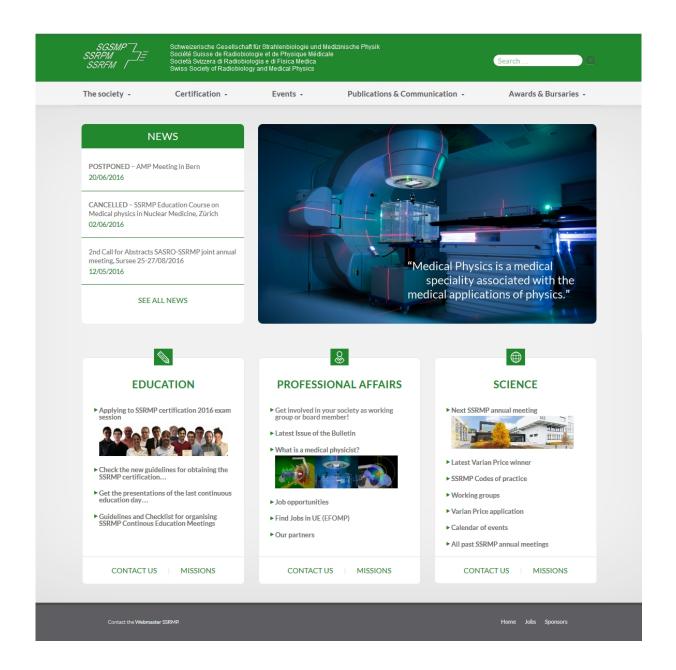
I am sure that the joint meeting in Sursee is going to be a platform, where we can collaborate with our clinical partners and where we can demonstrate our importance. I am also very optimistic that our research related achievements are going to be acknowledged by the clinicians and that our significance as an academic discipline is going to be recognized.

Hope to see you soon, in Sursee!

Peter Manser

New SSRMP Front Page

Website http://ssrpm.ch/ - http://sgsmp.ch/



The editor team has intensively pursued the development of the SSRMP website as well as providing regular updates. An updated version of the website has just been made available with a new Front Page providing a fresh experience for the visitors. This achievement fulfils the concept proposed a few years ago by the board . The website's Front Page emphasizes the organization structure around its three committees which the board currently relies on for its daily business. Each subsection found on the Front Page gives the visitor direct access to its committee's related and managed topics. Nevertheless, the top bar menu remains roughly the same but also contains a new calendar of events grouping all categories. Both approaches may not be fully redundant but should offer different experiences of the contents and an easy way

to find what is looked for. An advanced search tool, which was actually already running on the previous version, further supports the visitor.

The calendar of events has been totally redesigned to group all events into one unique section, offering the visitor to choose from categories of courses or congresses. Past events remain available by navigating through years and months. A predefined filter is also available for selecting all past SSRMP annual meetings. You may find complementary support from web videos ("Timely All-In-One Event Calendar") by using the calendar. Detailed information for an event is now available by expanding the event box (Read more →).

Also new is the recovery of the member's addresses query tool. It was necessary to develop one new piece of software.

The sections Jobs and Sponsors are now accessible from the footer leaving more space for the top bar menu especially when the website is displayed on tablet. However, both benefit from a dedicated link within the professional affairs subsection. On smartphones, the Front Page will reorganize itself as one column with drop-down top menus.

I hope you will find the new version of the website attractive and useful. I'm looking forward to getting your reactions.

The Bulletin, the website and the mailing list of SSRMP are how the SSRMP communicates with its members and presents itself to the outside world. Please let us know your comments and ideas on how to make these platforms attractive and useful.

On behalf of the editor team Jean-Yves Ray, Chair of the committee for professional affairs

Working Group Medical Imaging Physics

Meeting Minutes 31st May 2016

Opening (Gerd Lutters KSA)

Beginning of the meeting 14:15

In the opening Gerd Lutters (GL) enabled a discussion on the main topic:

The role of Medical Physicists in Medical Imaging, Diagnostic Radiology and Art.74.7

2. Role of Medical Physicists (R. Menz)

The draft of the statement of the board of SSRMP concerning the role of medical physicists attached in the appendix was presented by Roman Menz.

A vivid discussion arose around the practical realization of our collaboration in a radiological department and our involvement in issues like regular machine QA, maintenances etc.

Major consensus was that as physicists our approach in contributing to an improvement in radiation protection and reduction of applied dose should be a consulting activity based on science and scientific methods and analysis. This would not mean that also very practical and basic advice might be needed in the institution.

The necessity of a clearly defined minimal time span for the involvement per device was discussed controversially. Parts of the group expressed they would not need this framework whereas others considered the minimal times to be a means of regulating the competition among the service providers and defining basic points in cost accounting.

3. Feedback BAG: Nuclear medicine physicists (Th. Flury)

The results of a survey performed in Nuclear Medicine departments by BAG were presented by T. Flury. In this 56 institutes contributed in answering the questionnaire distributed by BAG. In total 72 answers were given because multiple answers were possible. These considered 35 PET and 49 SPECT devices. Among the institutes about 40% were serviced by internal medical physicists.

A major opinion in the answers expressed by 50% of the participants was that the time spent by the physicists was below the recommendation, which might express that preparation and evaluation times were not identified by the participants. According to this finding in the answers a proposal was made to reduce the time recommended to 2–3 days for hybrid imaging devices and 1–2 days per gamma camera.

Following this presentation a discussion took place considering the involvement of medical physicists in nuclear medical therapies especially the less standardized ones and about the problem of quantifying the dose in nuclear medicine

4. Candidates board members SGSMP / SGSMP annual meeting

This year 3 persons of the board of SSRMP will step down leaving 2 vacancies. In this context it was common perception among the attendees of the meeting that at least one of the open places should be covered by a medical imaging physicist. This ended in the demand of finding a candidate out of the MIP group which was not solved in the meeting.

5. Website SGSMP: MIP-Meetings / Introduction MIP Group

This topic was about the question whether the MIP Group is adequately represented on the website of SGSMP/SSRMP. The general opinion was that especially as we are still one of the younger workgroups of SSRMP it would be useful to present our objective activities and work environment

etc. in more detail on the SSRMP website. Gerd Lutters volunteered for the job of taking care of the presentation of the MIP group.

6. MIP research platform (in SGR/SSR)

GL opened the discussion on the possibility of having a dedicated research platform for the presentation of our work and research activities during the annual Swiss Congress of Radiology. This would offer the opportunity to detach our activities from pure radiation protection aspects. The question arouse whether we would be able to fill a whole session on SCR with our topics. No clear consensus was found for this problem.

7. Feedback working groups

7.1. CT

The CT workgroup reported that this year's CT education course was a success. The next one will be in 2018.

7.2. Fluoroscopy

For the fluoroscopy workgroup Jörg Binder reported the fact that x-ray applications in operation theatres come progressively into the focus of the work of fluoroscopy related physicists. This may in part be due to this year's activities of BAG in performing clinical audits in this field.

7.3. Nuclear Medicine

The nuclear medicine workgroup gave first results of the SGNM imaging survey. From this opportunities for dose reductions become evident. Also more precise information on the question where optimization is possible has been found. The group appreciated the contributions of other persons working in this field.

Report on AAMP-ISEP/FAMPO Diagnostic Imaging Symposium

International Symposium on Advances in Diagnostic Imaging Physics 26-29 March 2016 Rabat, Morocco

http://www.asso-ampm.com/isep/

The first AAMP-ISEP/FAMPO Diagnostic Imaging Symposium was held on 26-29 March 2016 in Rabat (Morocco). This workshop was sponsored by the American Association of Physicists in Medicine (AAPM) under the International Scientific Exchange Program (ISEP), with additional financial support provided by the International Organization of Medical Physics (IOMP), the Moroccan Association for Medical Physics (MAMP) and four local companies.

This is the second time it was held in Morocco (the first ISEP therapy meeting was held in 1996) and also the second time that it was held in North Africa (the first ISEP imaging meeting was held in Algeria in 2008). The attendance comprised mostly professional medical physicists involved in diagnostic and therapeutic medical physics, nuclear medicine physicians, radiation oncologists, graduate students and university professors from the faculties of science and medical schools of the universities of Rabat and Casablanca.

The purposes were twofold: one was to create an opportunity for the medical physicists from Morocco and other African countries to gather together and to learn from each other's experiences. The other was to promote clinical imaging physics as a profession and to foster closer collaboration between radiologists/nuclear medicine physicians and academicians in Morocco. The workshop was intended for professionals where renewed faculty specialized in physics of diagnostic imaging, multimodality molecular imaging, and radiation oncology presented their experience in didactic settings, so as to maximize the learning experience for the participants of the workshop, to inspire further collaborative research and development efforts within Morocco and internationally, and to improve the quality of patient care through closer involvement of medical physicists. This almost one week workshop included advanced lectures and visits to the hospital covering various aspects of the applications of physics in medicine, emphasizing diagnostic imaging techniques and radiation treatment of cancer. The invited AAPM faculty included Profs. Habib Zaidi (Geneva University Hospital, Switzerland, workshop director), Adel Mustafa (Yale University, USA), Anthony Seibert (University of California Davis, USA) Moyed Miften (University of Colorado, USA), Robert Jeraj (University of Wisconsin, USA), Robert Gould (University of California San Francisco, USA) and Virginia Tsapaki (Konstantopoulio General Hospital, Greece). The co-directors for the workshop were Prof. Habib Zaidi, representing AAPM-ISEP and Dr Samir Mouatassim, President of the MAMP.

The first day was very well attended, with over 150 participants including invited guests representing different bodies involved in medical physics activities in the country, also representatives from the ministries of Health and Education. The participants were from 25 different countries, mostly within Africa, but also from Europe (Switzerland, Belgium and France). About 25 participants from Africa supported by the IAEA attended the meeting. More than 100 certificates were delivered to participants. A number of participants attended only 1 or 2 days and didn't receive the certificate.

The establishment of the Moroccan Association for Medical Physics took place on July 24, 1996. The number of the members of this society is growing rapidly these last years and has already reached

more than 50 while the total number of medical physicists in Morocco has exceeded 70. 56% of them are working as radiation therapy physicists. 54 medical physicists have a Master (MS) degree only and 22 have a doctorate (PhD) level.

A small industrial exhibition took place nearby the auditorium. After the opening of the meeting by Prof. R. Cherkaoui, Vice-president of the University Mohammed V (Vice-president for Research, Cooperation and Partnership) followed by the co-directors for the workshop, Dr Tsapaki (IOMP) and Dr Taofeeq Ige (FAMPO), the meeting started with an opening lecture by Dr Mouatassim on the history of medical physics in Morocco. This was followed by series of basic and advanced lectures dealing with all aspects of diagnostic imaging physics and instrumentation and their application in radiation therapy. The official program included more than 24 hours of classroom lectures on various diagnostic medical imaging topics. The full scientific program can be consulted on the workshop web site. In addition to didactic lectures, one afternoon was dedicated to a visit of the radiation therapy department of the National Institute of Oncology in Rabat.

After 4 inspiring days, the workshop came to a close on Wednesday 29 March 2016; leaving behind some remarkable teachings and countless wonderful memories ... The local organizing committee did an excellent job from looking after accommodation for participants coming from outside the capital and from nearby countries to lunches, gala dinner, ... etc. The educational program was remarkably executed, as witnessed by all participants and reported in the evaluation forms. The conference drew some of the widely known experts in diagnostic imaging physics and it was no surprise that the lectures delivered were of great quality. All invited speakers delivered brilliant lectures and provided plenty of valuable handouts that were made available to the participants on the workshop's web site.

ISEP 2016 would not have been a reality if it weren't for all individual participants and representatives of the involved organizations, with special thanks extended to the main promoters of ISEP workshops (AAPM and IOMP), the FAMPO and the local host (MAMP) in addition to all local sponsors.



Photography showing the invited faculty including: Professors Mustafa Adel, Habib Zaidi, Anthony Seibert, Moyed Miften, Robert Jeraj, Robert Gould and Virginia Tsapaki and the local organizers Drs Samir Mouatassim and Lakbir El Hamidi.

Habib Zaidi, HUG

Report on ESTRO Course: "Implementation and practice of image-guided stereotactic body radiotherapy"

When selecting a theme to carry out the mandatory continuous education program, it is often possible to choose a destination that mixes work and pleasure. Athens is probably one and I will certainly not be contradicted by one of the 150 participants to the ESTRO course entitled "Implementation and practice of image-guided stereotactic body radiotherapy" held from June 5th through 9th, 2016.

Sunday June 5th was the introduction day. Clinical and technical considerations on the shift from frame-based stereotaxy to frameless image guidance, lung case examples, radiobiology, dose and fractionation, errors, etc: all lectures intended to lead the audience in the peristasis of the temple where the goddess SBRT is worshiped. A first access to the naos was offered the next day when the focus was set on target management, treatment planning and quality assurance, or subtle margin recipes found on parchments attributed to a bearded semi-divine figure whose cult recently spread from the Batavi to the Brigantes. More prosaically, the hardness of the chairs in the conference hall was certainly meant to make everyone remember Sparta not being that far from Athens and dread for some syssitia at the forthcoming social event. But the gods were merciful and the banquet at the sea was equal if not superior to those of the Achaemenid great kings.



Acropolis seen from the conference hotel restaurant.

If some clinicians were left out of the temple on Monday, they caught up on Tuesday when phalanxes of randomized studies flanked by peltasts of Kaplan-Meier graphs demonstrated as stiff and strong as a guard on Syntagma square the evidence-based place of SBRT for stage I NSCLC in the treatment arsenal. This was followed by practical split-sessions on liver or lung. Next, the satellite symposium was disturbed by Zeus and his thunderbolts. It is not established yet if he wanted to strike the orator of such an indigent talk or me having such thoughts, but the truth is that Hera could appease him at the end of the session, namely for the free afternoon. And that was time for the old stones lovers to wander around the Acropolis, struggling hard not to slip on the wet pentelic marble or for the tourist shop lovers to get lost in the curly and narrow streets of Plaka.

Focus was set on Wednesday on the most common other SBRT indications, such as prostate, pancreas, liver and vertebral metastases. On Thursday detailed advises were given to start a SBRT program as easily as buying a sachet of pistachios on Monastiraki square. Some might call that fifth day climax, other catastrophe, the catharsis being the travel to the airport when public transportations are on strike.

Valéry Zilio, Sion, 22.06.2016

CALENDAR 2016

25th-27th August SSRMP 50th Annual Meeting and SASRO 20th Annual Meeting

Sursee, CH Joint Meeting 2016

http://www.sasro.ch/2016

1st-4th September 1st European Congress of Medical Physics

Athens, GR <u>https://www.ecmp2016.org/</u>

7-10th September 47th Annual Meeting of the German Society for Medical Physics (DGMP)

Würzburg, DE http://www.dgmp-kongress.de/

4-6th October BMT 2016 Swiss, Austrian and German Societies of Biomedical Engineering

Basel, CH http://www.bmt2016.ch/

5th-7th October 2nd course on Monte Carlo methods in radiation therapy

Maastricht, NL http://montecarlo-techniques-course.weebly.com/

29thOct-6th Nov IEEE Nuclear Science Symposium and Medical Imaging Conference 2016

Strasbourg, FR http://2016.nss-mic.org/index.php

27th Nov-2nd Dec RSNA 2016

Chicago, USA http://www.rsna.org/Annual Meeting.aspx



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!



About the center

The centre of Radio-Oncology of the Clinique de la Source began its activity in 2001. At the beginning only one Clinac 2100 C/D was installed. The team was composed of one certified medical physicist, 2 radiation oncologists and 4 technologists.

About the team

Presently our team has expanded to 3 certified medical physicists, 2 radiation oncologists and 10 technologists, 3 dosimetrists, 4 secretaries. We are treating more than 500 patients per year with two accelerators

Equipment and technique

In 2011, we installed the first TrueBeam in the French part of Switzerland. This allowed us to offer our patients treatments using modern techniques like VMAT and IGRT. This was a real improvement because before this installation only 3D CRT was available.

In 2012, we began to treat patients with stereotactic techniques. We first focused on radiosurgery and stereotactic treatment of brain metastases. By mid-2014, we began SBRT treatments in the lung and in a second phase for the liver. For each patient benefiting from this technique a 4D-CT is performed, allowing the definition of an ITV for the treatment planning which minimises the irradiation of normal tissues.

The increasing number of stereotactic treatments motivated the Clinac replacement by a Varian Edge, especially designed for such treatments. It possesses an array of technologies designed to manage the synchronisation to the tumor's movements, either by RFID implants (Calypso), the tracking of the patient breathing with infrared markers (RPM) or the optical scanning of the patient's body (OSMS).

Project and developments

While the EDGE accelerator is now running, we have several exciting projects related to it. In particular, preparing for the clinical use of the Calypso RFID implant system, the configuration of the Accuros algorithm for a more accurate dosimetry and the use of RapidPlan to reduce planning time and increase planning consistency.



A part of the team in front of the EDGE: Sylvain Bürki (RTT), Magali Wulliens (RTT), Fabienne Turberg (Chief RTT), Fabio Reis (RTT), Vincent Fave (Physicist), Gladys Letenneur (Dosimetrist), Genvieve Demol (RTT) et Marylene Chrétien (RTT)

I M P R E S S U M

Publisher
Schweizerische Gesellschaft für Strahlenbiologie und Medizinische Physik (SGSMP/SSRPM/SSRFM)

Printing Press
Druckerei PSI

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

Tel. 092 319 77 30
sbulling@eaux-vives.com
Tel. 05 310 37 45
shulling@eaux-vives.com
Tel. 027 603 45 12
jean-yves Ray
Service de radio-oncologie
Höpital de Sion
Grand-Champsec 80
1951 Sion
Tel. 027 603 45 12
jean-yves Ray
Service de radio-oncologie
Höpital de Sion
Grand-Champsec 80
1951 Sion
Tel. 027 603 45 12
jean-yves Ray
Service de radio-oncologie
Höpital de Sion
Grand-Champsec 80
1951 Sion
Tel. 027 603 45 12
jean-yves Ray
Service de radio-oncologie
Höpital de Sion
Grand-Champsec 80
1951 Sion
Tel. 027 603 45 12
jean-yves Ray
Service de radio-oncologie
Höpital de Sion
Grand-Champsec 80
1951 Sion
Grand-

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. 87 (03/2016): 11.2016

Title	Name (Function)	Professional Address	Tel. Office * = Sekretariat ** = Zentrale	E-Mail
Dr. sc. nat.	Peter Manser President	Abteilung für Medizinische Strahlenphysik Inselspital - Universität Bern 3010 Bern	031 632 37 71 031 632 24 29 * 031 632 21 11 **	peter.manser@insel.ch
PD MER Dr.	Raphaël Moeckli Vice-President/Chair Science Committee	Inst. Univ. de Radiophysique (IRA) Rue du Grand-Pré 1 1007 Lausanne	021 314 46 18 021 314 80 68* & **	raphael.moeckli@chuv.ch
Dr. phil. nat.	Daniel Vetterli Secretary	Radio-Onkologiezentrum Biel Rebenweg 38 2503 Biel	032 366 81 15 032 366 81 11*	daniel.vetterli@radioonkologie.ch
Dr. phil. II	Werner Roser Treasurer	Paul Scherrer Institut 5232 Villigen PSI	056 310 35 14 056 310 27 20*	werner.roser@psi.ch
Dr. rer. nat.	Frédéric Corminbœuf Chair Education Committee	Centre de Radio-Oncologie Clinique la Source Av. Vinet 30 1004 Lausanne	021 642 70 00	f.corminboeuf@lasource.ch
MSc.	Jean-Yves Ray Chair Professional Affairs	Service de radio-oncologie Hôpital de Sion Grand-Champsec 80 1951 Sion	027 603 45 12 027 603 45 00 * 027 603 40 00 **	jean-yves.ray@hopitalvs.ch
Dr.	Hans W. Roser	Wielandplatz 10 4054 Basel	079 213 42 89	hans.roser@bluewin.ch
Dr. med.	Markus Notter	Service de Radiotherapie Hôpital Neuchâtelois 2303 La Chaux-de-Fonds	032 967 21 51* 032 967 21 11**	markus.notter@ne.ch
Dr.	Stefano Presilla	Ente Ospedale Cantonale Servizio di Fisica Medica Viale Officina 3 6501 Bellinzona	091 811 12 24	stefano.presilla@eoc.ch
Dr. phil. II	Roman Menz	Radiologische Physik Universitätsspital Basel Petersgraben 4 4031 Basel	061 328 7314	roman.menz@usb.ch