

BULLETIN

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Cover: Preliminary survey results – professional information report
Fig. 1: Distribution of total salary corrected for full time

P r e s i d e n t ' s l e t t e r

Dear colleagues,

First of all, I wish you all the best for 2012!

The annual congress took place in Vienna with our German and Austrian colleagues. At Dreiländertagung we had the opportunity to present the results of our survey concerning the situation in medical physics in Switzerland, in which there is considerable interest from our foreign colleagues. In addition, certain of our young colleagues were able to present their abstracts at the meeting thanks to four travel grants awarded to them by SSRPM. As usual, the Dreiländertagung was a great success and I look forward to the next combined meeting, which might be held in Switzerland.

Another important event for our society was a celebration to farewell six of our colleagues who were due shortly to retire. At this event, we had the opportunity to hear each of them speak, in their own style, about the past, present and future of radiotherapy – as well as about other interesting and sometimes surprising topics. The afternoon in Bern was very enjoyable, marred only by the absence of Roberto Mini, who had recently passed away. There is no doubt that Roberto had a very important influence on our profession in Switzerland, shaping the Society, and more generally what is medical physics in this country today. I take the opportunity of this letter to pay my deepest respects to Roberto.

In previous successive editions of this Bulletin, I informed you about improving the implementation of Article 74 al. 7, introduced in the Ordonnance on radiation protection revised on 1 January 2008. This process is a lengthy one, and I report that it continues, with further progress being made since the last Bulletin. In short, there are various initiatives in Switzerland to provide the support needed for radiology and nuclear medicine. To help in these tasks, the Society will organize two 2-day training events specifically dedicated to the tasks of medical physicists relating to article 74 al. 7. More information about this training will be provided to you soon.

In other news, following medical physics certification examinations in Fall 2011, it is my pleasure to welcome nine new medical physics colleagues. My congratulations to each of you!

Along with examinations, our SSRPM guidelines comprehensively describe what is entailed in the Swiss medical physics profession. However, these guidelines haven't been updated in more than a decade, and need revision in order to keep up with contemporary and future developments. Aspects of the guidelines that need revisiting include professional admission criteria, the criteria for professional equivalence, and the body of skills and knowledge that has to be mastered by candidates. It has therefore been decided to comprehensively revise the guidelines. We hope to have the results of this work submitted to the next SSRPM general assembly.

Speaking of the general assembly, our next annual meeting will take place in Biel/Bienne from the 18th to the 19th of October 2012. This meeting will also be an opportunity for the renewal of the board. If you have an interest in participating in the board's work or in one of our three permanent committees, please be prepared to raise your hand! Your candidature for positions in one of these bodies would be most welcome. In any event, I look forward to seeing you at the AGM.

As a matter of routine, our Society is very active, and it's often difficult to summarize the great variety of work our colleagues do in a manner that does it proper justice. However, I'd like to take this opportunity to thank all of my colleagues diligently working on providing or implementing recommendations, revising documents, organizing events and the many, many other tasks they undertake on behalf of the SSRPM's wider membership. Their work is the lifeblood of our Society, and essential to its continuing vitality.

As usual, you'll find far more information in the Bulletin than in my few words, and (again) I thank our hardworking editors for that.

I wish you an excellent end of winter. Enjoy your Bulletin!

Meilleures salutations de Lausanne,

Raphaël Moeckli

Results of the Certification Exams in Medical Physics (SSRMP)

In the exams for the certification in medical physics SSRMP 2011 (25.10. - 02.11.2011) the following persons succeeded:

Rachid Boucenna, Clinique des Grangettes
Nathan Corradini, Clinica Luganese
Thomas Götzfried, KS Luzern
Roger Hälgi, Triemli Stadtpital Zürich
Federico Hasenbalg, Triemli Stadtpital Zürich
Jan Hrbacek, PSI
Maud Marguet, CHUV
Sairos Safai, PSI
Fabrizio Storelli, Hirslanden Zürich

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

Stephan Klöck, 02.11.2011, Zürich

In memoriam to Dr. Roberto Mini



Dr. Roberto Mini was born on June 21st 1946 in Bern. He was growing up in Bern. In the last years, he was living in Bolligen close to Bern together with his wife and his two children.

Roberto Mini studied physics at the University of Bern where he graduated in 1976 at the Institute of Physics. In his graduate thesis he was investigating the cosmic radiation on the Jungfrauoch. For this purpose, he had to go to the mountains in order to catch the cosmic rays by adequate instruments. He was always proud when he was telling stories about these times. And there was always a smile in his face when he mentioned the night shifts on the Jungfrauoch where he had to give the electronics of the detectors some kicks in order to detect the neutrons and protons of the cosmic radiation.

Directly after his graduation, Roberto Mini entered the field of Medical Physics. First, he was employed as an assistant in the clinic for radio-oncology at Inselspital, University Hospital Bern. At that time, he was working on his PhD thesis. His supervisor was Professor Poretti – one of the first medical physicists in Switzerland. In his PhD thesis, Roberto Mini investigated the radio-biological models based on data from radiation therapy.

In the following, Roberto Mini was engaged in different clinical aspects of Medical Radiation Physics. At the time of the early 80's it was not clear that a physicist has to be involved in the clinics. However, Roberto Mini was one of those who were supporting the general concept that a Medical Physicist has to take over the responsibility to apply the correct dose to the individual patient. This was one of Roberto Mini's credos, which he always followed: as an academic person you have to take over responsibilities. By this means, it was clear for Roberto Mini that a Medical Physicist has to be present at the front where the treatment planning and the treatment delivery take place.

With this credo in mind, it is also very clear and logical that Roberto Mini wanted to influence and support the field of Medical Physics in a broader perspective. Thus, he was not only acting locally at Inselspital but also on a national and international level. He was in the board of SSRMP where he was Secretary for several years. He was one of the founders of the professional SSRMP certification in Medical Physics in 1988 and later on he was member of the exam commission of the SSRMP certification. Different task groups of SSRMP and of the Swiss Commission of Radiation Protection were able to benefit from Roberto Mini's profound knowledge in Medical Physics. The last SSRMP task group where he was involved was Report No. 20, which was dealing with the recent change of Art. 74. His knowledge and his experience in the field of quality assurance and radiation protection in radiology were very fruitful for this task group.

But it was not only his knowledge and interest in Medical Physics which made Roberto Mini very influencing to all of us within our society. This knowledge was combined with something more powerful: enthusiasm and passion. It was also his eloquence and his understanding of business and economics, which made him convincing and successful. We all remember the Dreiländertagung 2007 in Bern. It was definitely due to Roberto Mini's efforts that this meeting was successful both for research activities and networking with our esteemed colleagues from DGMP and OEGMP. In addition, as executive director of the Radium Foundation Bern, he organized the Zuppinger Symposium every 2 years and provided another important platform for the Swiss Medical Physics community. There is no doubt: SSRMP and we all were able to benefit many times from Roberto Mini's skills and efforts.

Since 1986, Roberto Mini was head of the Division of Medical Radiation Physics at Inselspital, University Hospital in Bern. He was dealing a lot with clinical tasks but he was also very engaged in radiation protection, research, and educational aspects. Roberto Mini was able to motivate his staff to the extremes and beyond. The staff members of this Division were and still are proud to have worked together with him. It is certainly his merit that today the Division of Medical Radiation Physics is well known on a national and international level.

His own research fields at the very beginning of his career were dedicated to radiation biology and diagnostics. He was collecting the data from different centers in Switzerland and provided a survey of the current radiation doses in diagnostics. In addition, he was dealing with calculations and measurements of doses in diagnostics. His work is well known in the community and from the citations in the literature it is clear that the work is still important today. More recently, Roberto Mini was involved in research fields related to radiation therapy. He was dealing with inverse treatment planning optimization, delivery and verification of IMRT fields, analyzing and computing doses for photon and electron fields using Monte Carlo methods and many more.

Definitely, Roberto Mini was an ideal person when it was needed to acquire a new research grant or when there was a need to replace a linac by a new one with limited resources. It was his personal effort, his creativity and his long-term persistency, which lead to big and successful deals. With professional engagement, he was able to realize not only low-risk but also high-risk projects. Many times, he proved to be able to manage difficult situations professionally and easily - sometimes even under extreme conditions.

Roberto Mini was also a gifted teacher. He was involved at the University of Bern for students of medicine and at the Swiss Federal Institute of Technology (ETH) in Zurich for students of physics. He was one of the persons who are able to make the field of Medical Physics attractive for everyone: students, colleagues, medical doctors, leading persons and authorities. It was his distinguished ability to speak, his charismatic presence and probably also his esteemed and smart Italian style, which made him one of the most influencing people within the Medical Physics community. Furthermore, it was also his blink in the eye with which he was leading, convincing and motivating.

In Roberto Mini's understanding, Medical Physics was not only a profession. It was both hard and rewarding work. It was fascinating and interesting. It was challenging and it was the field to satisfy his curiosity. For him, Medical Physics was his chance, his distinction, and his life.

Since fall 2009, Roberto Mini has not been able to work anymore due to his illness. Two years later, on October 8, 2011, he passed away and was released from his suffering. We will keep him in memory as a great person and good friend.

*Dr. P. Manser and Dr. E. Born,
Division of Medical Radiation Physics,
Inselspital, University Hospital Bern*

SGSMP Research Grant 2012

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 SGSMP. 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 SGSMP
- 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 SGSMP
- 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 SGSMP 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 SGSMP Bulletin. The scientific report should be, pending scientific committee's review and approval, submitted for oral contribution to the annual SGSMP meeting.

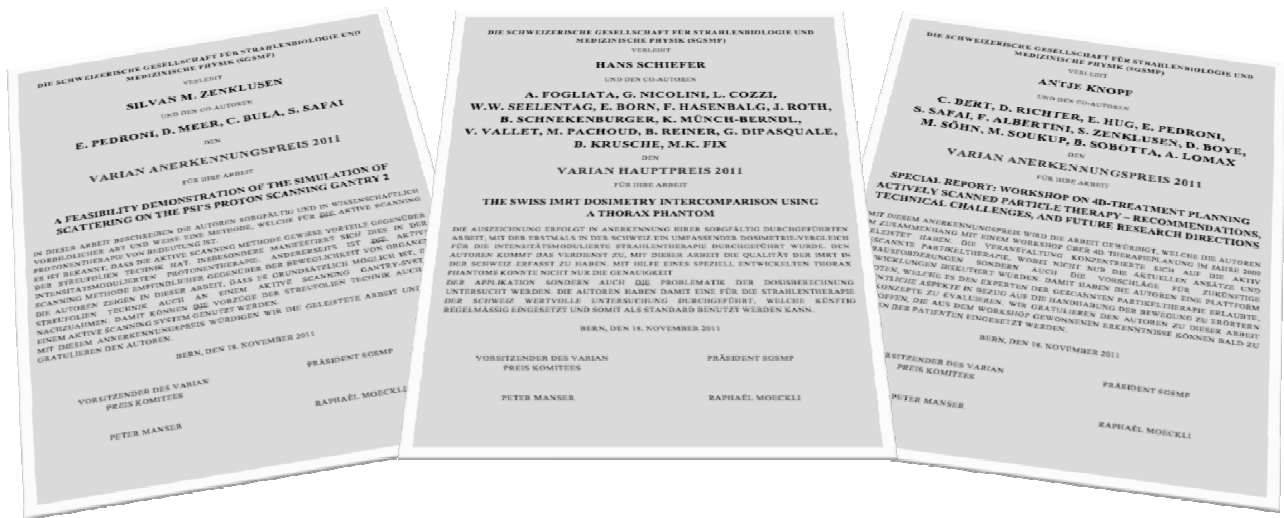
Deadline for submission of proposals is March 31st 2012.

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 to the chair of the SGSMP Science Committee:
Peter Manser, Div. of Medical Radiation Physics, Inselspital, 3010 Bern.

Varian Award 2011



At the general assembly on November 18, 2011 in Bern, three papers were awarded with the Varian Prize of Radiation Oncology of SSRMP:

Hauptpreis (CHF 3000.-)

H. Schiefer, A. Fogliata, G. Nicolini, L. Cozzi, W.W. Seelentag, E. Born, F. Hasenbalg, J. Roth, B. Schnekenburger, K. Münch-Berndl, V. Vallet, M. Pachoud, B. Reiner, G. Dipasquale, B. Krusche, M.K. Fix, *The Swiss IMRT dosimetry intercomparison using a thorax phantom*, Med. Phys. 37, 2010

Anerkennungspreis (CHF 500.-)

A. Knopf, C. Bert, D. Richter, E. Hug, E. Pedroni, S. Safai, F. Albertini, S. Zenklusen, D. Boye, M. Söhn, M. Soukup, B. Sobotta, A. Lomax, *Special report: Workshop on 4D-treatment planning actively scanned particle therapy – Recommendations, technical challenges, and future research directions*, Med. Phys. 37, 2010

Anerkennungspreis (CHF 500.-)

S. Zenklusen, E. Pedroni, D. Meer, C. Bula, S. Safai, *A feasibility demonstration of the simulation of scattering on the PSI's proton scanning Gantry 2*

We congratulate all the authors and thank them for their important work.

**Peter Manser, Inselspital – University of Bern
President of the Varian Prize Committee**

Varian Award for Radiation Oncology of SSRMP

Deadline for submission: March 31st 2012

Award rules:

1. SSRMP can award during the annual general assembly up to three Varian prizes. The maximum amount for a single Varian prize is SFr. 3'000.-. Varian Medical System Inc. donate to SSRMP each year SFr. 3'000.- for the Varian prize.
2. The prizes are given to single persons or to groups, which have made an excellent work in radiobiology or in medical physics. 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.

**Peter Manser, Inselspital – University of Bern
President of the Varian Prize Committee**

Preliminary survey results – professional information report

In June 2011 SSRMP launched its first web-based salary survey following surveys in 2004, 2005 and 2007. For us as a scientific and professional organization, our colleagues' income with all employment parameters is a very important measure to evaluate medical physicists' conditions in Switzerland, not only at clinics.

The target group of the survey were medical physicists with and without SSRMP certification and engineers working in medical physics departments in Switzerland; thus, 158 invitations were sent out. The participation in the inquiry amounts to 57 % (90). Higher than the participation in previous surveys, the data are more representative for all colleagues of our profession in Switzerland.

The committee for professional affairs will later publish a report with detailed results but here is a brief overview. We already thank all of you who contributed to this inquiry. This successful answer rate encourages the committee carrying on with electronic surveys.

Typical outcome

Total number of survey invitations sent:	158
Total no response	47 (30%)
Total opted out	21 (13%)
Total surveys completed	90 (57%)
Percentage of female participants	26%.

About 69% of the participants have the SSRMP certification and 17% are acquiring it. Less than 14% don't have the SSRMP certification.

Salary figures

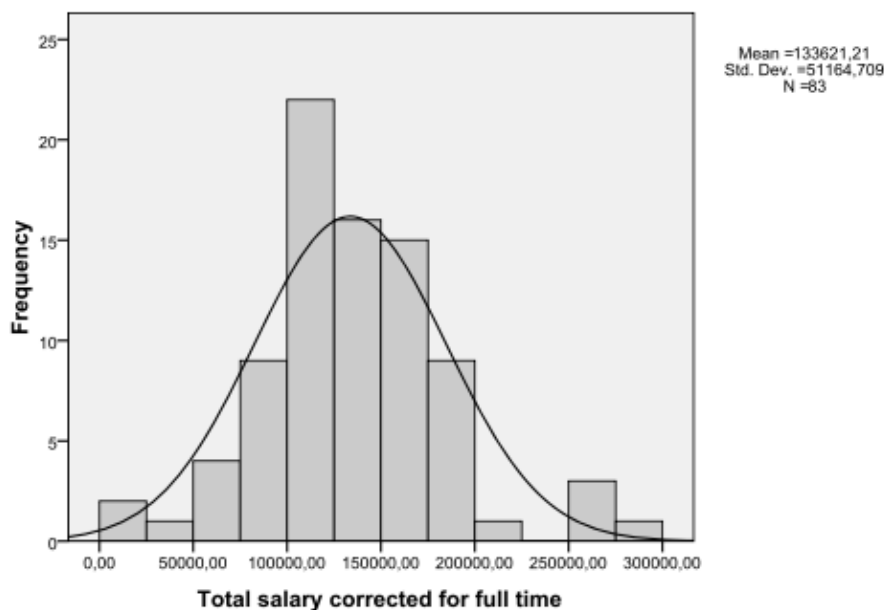


Fig. 1: Distribution of the total salary corrected for full time

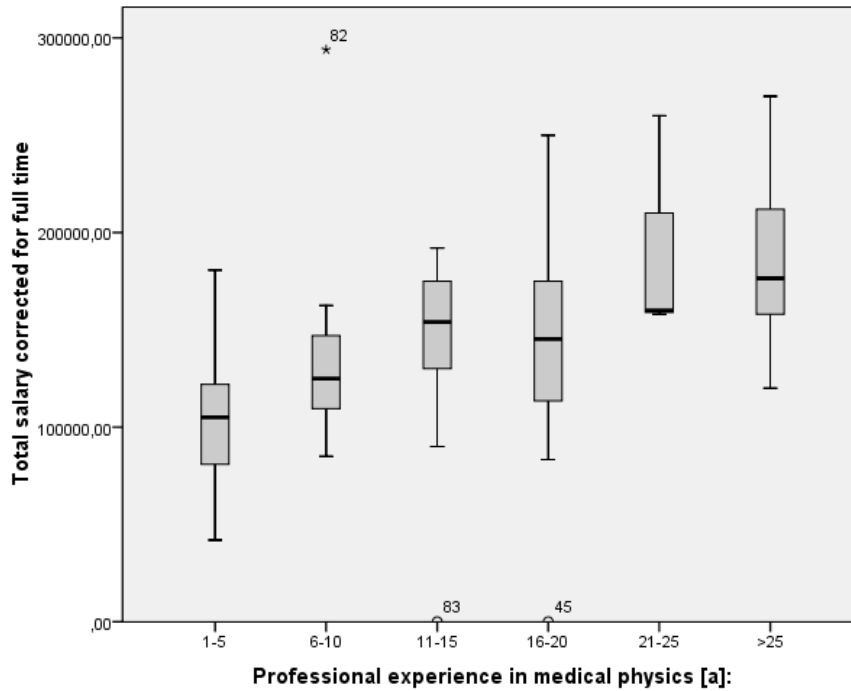


Fig. 2: Total salary corrected for full time versus years of professional experience

About 30 % of the surveyed persons have less than 6 years of professional experience. Another 25% have a professional experience between 6 and 10 years. Although the average income increases with years of professional experience, medical physicists ranging 16-20 years of experience have a lower median income than those 11-15 years.

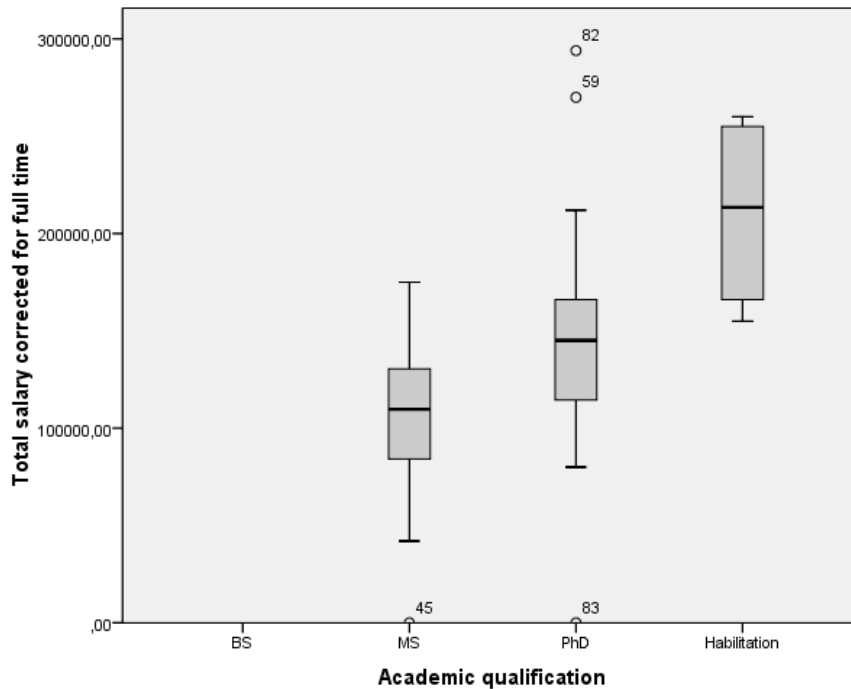


Fig. 3: Total salary corrected for full time stratified according to academic qualification

36% of all participants have a MSc degree, 58% have a PhD degree and 6% have a habilitation degree. Data exhibit a statistically significant difference between the groups.

Issues of Interest

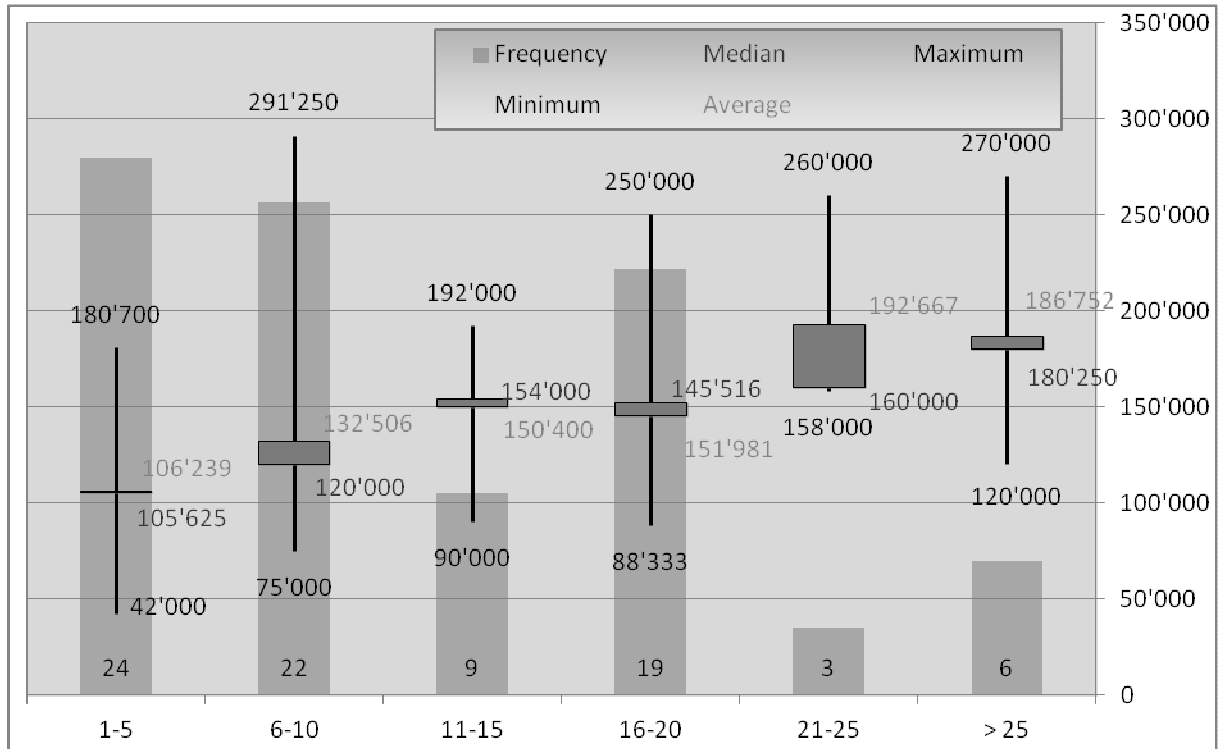


Fig. 2: Total Salary (+ bonus and extra income) corrected for full time before taxes vs. years of professional experience

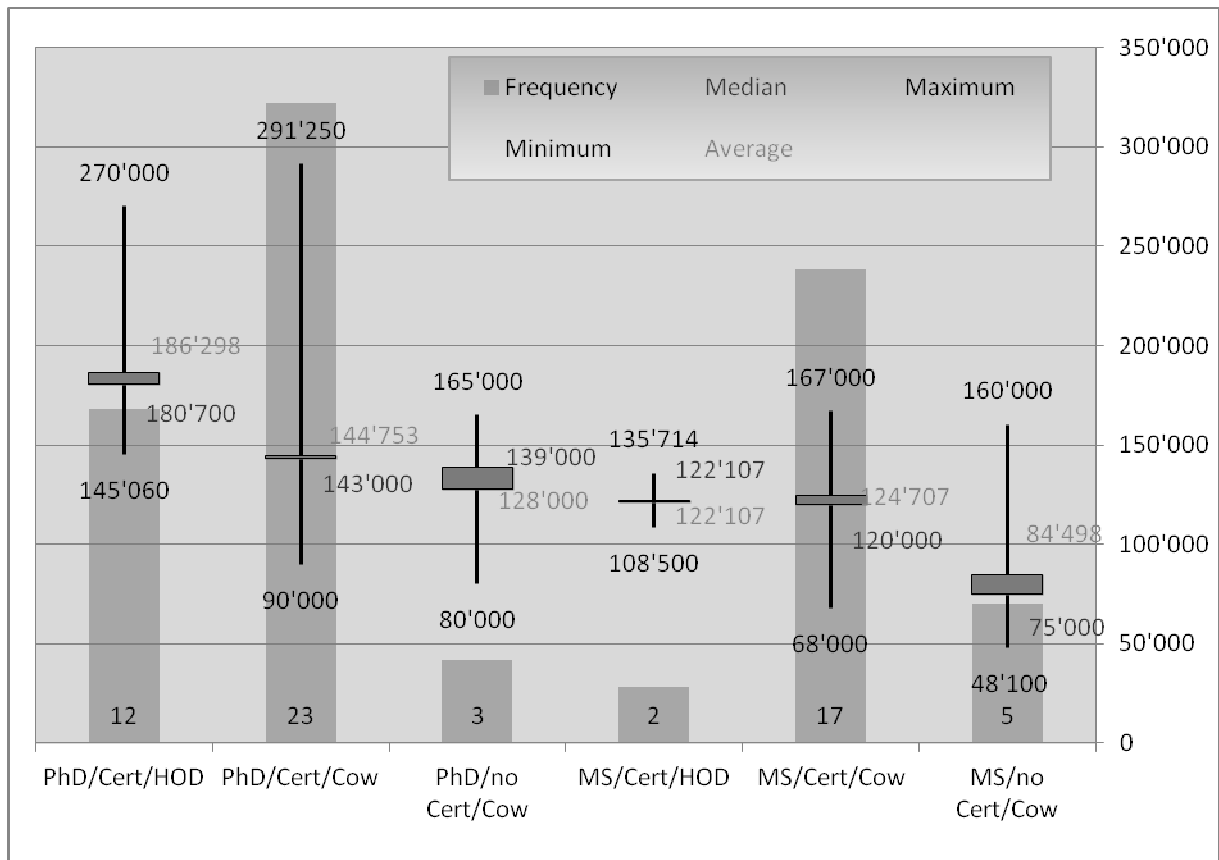


Fig 3 Total Salary (+ bonus and extra income) corrected for full time before taxes vs academic qualification and position; Cert=SGSMP certification, HOD=head of department, Cow=co-worker, MS=Masters degree

The committee for professional affairs.

Investigation of a new method for the diagnosis of breast cancer

The **Paul Scherrer Institute (PSI)** has developed a new breast cancer diagnostic method, and is now carrying out first tests on non-preserved human tissue in conjunction with the **Kantonsspital Baden AG**. This new method should be able to reveal structures that cannot be seen using conventional mammography. The researchers have reported on their results in the online edition of the “Investigative Radiology” journal.

In this new procedure, X-rays pass through the breast in exactly the same way as in conventional mammography. However, a normal X-ray image can only determine how much of the beam has been retained by the tissue – basically, an X-ray image just shows the shadow cast by the object under investigation. However, X-rays also undergo another subtle change as they travel through an object. Physically, X-rays are electromagnetic waves and, as they pass through various tissue structures, the direction of the waves undergoes slight changes – a similar effect to that shown by water waves hitting a pier in a harbour. “We at the Paul Scherrer Institute have spent years developing methods for investigating these changes and interpreting the information they contain, so that we can create the basis for new investigative methods to be used in medical and materials research”, explained Marco Stampanoni, Professor at the Institute for Biomedical Engineering at the University and ETH Zurich and director of this project at PSI.

One particular feature of the phase-contrast method used in this process is the three extremely fine gratings through which the X-rays have to pass – one in front of the object under investigation and the other two located behind it. The various components of the light waves interact with each other here in such a way as to provide the required information. The X-rays are generated in a tube that is essentially the same as an X-ray tube used in normal, everyday clinical practice.

The long-term aim of this work is to develop a novel piece of equipment that can be used for regular routine breast examinations in clinical practice, and deliver improved images of breast tissue – at a significantly lower cost than techniques such as computer tomography or magnetic resonance imaging. Philips has been brought into the project as an experienced partner in the field of healthcare. “The potential of this method is defined on the one hand by the innovative nature of the measured information, but on the other hand is also characterized by the use of conventional technologies that are widely applied in medical technology to generate and detect X-rays”.



Dr. Nik Hauser and Prof. M. Stampanoni discuss results in the mammography room at Kantonsspital Baden.

Source: M. Stampanoni, PSI

Rolf Wideröe und das Betatron

Norbert Lang

Schon als Student hat der Norweger Rolf Wideröe verschiedene Möglichkeiten skizziert, um sehr hohe elektrische Spannungen für die Atomforschung zu generieren. Er wurde zum Vater der Teilchenbeschleunigung und baute Elektronenbeschleuniger für Krebstherapie und Materialprüfung. Wideröe schwebten auch bereits Speicherringe zum Erzeugen von Teilchenkollisionen vor, wie sie später von anderen realisiert worden sind.

Ausbildung und Visionen

Rolf Wideröe wurde am 11. Juli 1902 in Oslo geboren. Nach dem Besuch von Grundschule und Gymnasium in Oslo studierte er Elektrotechnik in Karlsruhe. Als 21-jähriger Student hatte er die Vision, mittels elektromagnetischer Wechselfelder Elektronen auf hohe kinetische Energie zu beschleunigen. Er skizzierte hierzu verschiedene Realisierungswege. Als er dem "Vakuumpapst" Professor Gaede vorschlug, diese Ideen in einer Dissertation zu vertiefen, lehnte dieser das Thema als unrealistisch ab. Nach der Diplomierung und einem Industriepraktikum wechselte Wideröe nach Aachen an die Rheinisch Westfälische Technische Hochschule. 1927 promovierte er dort bei Professor Rogowski. Wideröes Arbeit: "Über ein neues Prinzip zur Herstellung hoher Spannungen" wurde 1928 in der Zeitschrift "Archiv für Elektrotechnik" publiziert. Darin legte er dar, wie für die Atomforschung nötige hohe Spannungen durch Elektronenbeschleunigung erzeugt werden können. Er zeigte zwei mögliche Wege dazu auf: mittels Potentialfeldern (Linearbeschleuniger, Linac) oder mittels Wirbelfeldern (Kreisbeschleuniger, Betatron). Wideröe legte hier die nach ihm benannte wichtige Betatron-Relation vor. Trotz des knappen Umfangs von gerade mal 20 Druckseiten lieferte seine Dissertation einen wichtigen Beitrag zur Hochenergiephysik. Sie regte den späteren Nobelpreisträger E. O. Lawrence dazu an, das erste Zyklotron zu bauen.

Von der Energietechnik zur Strahlenphysik

Von 1928 bis 1933 war Wideröe bei der AEG in Berlin tätig, wo er sich hauptsächlich mit der Entwicklung von Distanzrelais zum Schutz von Stromübertragungsleitungen befasste.

1933 kehrte er in seine norwegische Heimat zurück und betätigte sich weiterhin auf den Gebieten der Transformatorenentwicklung und Schutztechnik. 1940 trat er in den Dienst der Norwegischen Brown Boveri Werke (NEBB) in Oslo. Dort befasste er sich mit der Planung von Wasserkraftwerken. 1943 wurde Wideröe durch die deutsche Luftwaffe verpflichtet, in Hamburg ein 15 MeV Betatron zu entwickeln. Norwegen war 1940 durch die deutsche Wehrmacht besetzt worden. Da sein Bruder wegen Beteiligung an einer Widerstandsaktion in Haft sass, konnte Wideröe diesen Auftrag nicht ablehnen. Das deutsche Reichsluftfahrtministerium hoffte, Teilchenstrahlen als Kriegswaffe verwenden zu können. Doch bevor das Betatron einsatzfähig war, ging der Krieg zu Ende. Wideröe kehrte daraufhin nach Norwegen zurück.

Auf Empfehlung von ETH-Professor Paul Scherrer, dem Namensgeber des schweizerischen Forschungsinstitutes in Villigen, kam Rolf Wideröe 1946 zu Brown Boveri (BBC) nach Baden. BBC war an der friedlichen Nutzung der Atomenergie interessiert und verfügte über breites Know-How im Bau elektrischer Maschinen und in der Hochvakuumphysik (Elektronenröhren, Quecksilberdampfgleichrichter). Unter Wideröes Leitung entstand das BBC Betatron mit hauptsächlich Anwendungen in Medizin und Materialprüfung. Die erste Anlage wurde 1951 an das Universitätsspital Zürich geliefert. Insgesamt hat BBC gegen 80 Geräte im Energiebereich zwischen 31 und 45 MeV gebaut. In weiter entwickelter Form kamen sie unter dem Markennamen «Asklepitron» auf den Markt. Im Laufe der 1970er Jahre wurde das Betatron in der Radiotherapie weitgehend durch Linearbeschleuniger verdrängt, die

wegen ihrer kompakteren Bauweise mehr Alternativen bei der Bestrahlungsplanung und wegen der höheren Dosisleistungen kürzere Bestrahlungszeiten erlaubten. Mit dem Verkauf der entsprechenden Abteilung von BBC (jetzt ABB) an Varian im Jahre 1986 ging diese Epoche zu Ende. Die schon genannte erste, 1951 installierte 31-MeV-Anlage war nach dem Ersatz durch eine 45-MeV-Anlage am Universitätsspital an das Institut für Strahlenbiologie der Universität Zürich umgezogen - wo es bis zu dessen Auflösung im Jahre 1989 seinen Dienst tat.

Funktionsprinzip des Betatrons

Betastrahlen bestehen aus Elektronen. Wie erwähnt, ist das Betatron ein Elektronen-Kreisbeschleuniger. Wideröe nannte sein Gerät Strahlentransformator, weil es auf dem Transformatorprinzip beruht. Ein mit einphasigem Wechselstrom von 50 Hz erregter Eisenkern erzeugt ein sinusförmig pulsierendes Magnetfeld. An Stelle einer Sekundärwicklung ist eine evakuierte torusförmige Glasröhre eingebaut mit einer Wolfram-Glühkathode als Elektronenquelle. Mit einer Anfangsenergie von rund 50 keV werden die Elektronen tangential in die Kreisröhre eingeschossen. Während des knapp 5 Millisekunden dauernden positiven Anstiegs der Sinuskurve werden sie in der Kreisröhre auf nahezu Lichtgeschwindigkeit beschleunigt [6]. In dieser kurzen Zeit bewältigen sie rund eine Million Umläufe. Bei einem durchschnittlichen Energiezuwachs von 31 eV pro Umlauf erreichen sie eine kinetische Endenergie von 31 MeV. Damit der Elektronenstrahl während der Beschleunigungsphase auf einer Kreisbahn mit konstantem Radius gehalten wird, ist ein magnetisches Führungsfeld notwendig, das der Wideröe'schen 2:1 Relation entsprechen muss. Nach Erreichen der Endgeschwindigkeit wird der kollimierte Strahl magnetisch ausgelenkt und trifft auf ein Platinplättchen (die Antikathode) als Target. Durch die abrupte Bremsung werden ultraharte Röntgenstrahlen (Gammastrahlen) emittiert. Die Strahlen sind gepulst im 20-Millisekundentakt und vermögen Stahlwände bis zu 50 cm Dicke zu durchdringen, weshalb sie neben medizinischen Therapien auch für die zerstörungsfreie Materialprüfung verwendet wurden. Es sind auch Geräte mit direkt ausgelenkten Elektronenstrahlen gebaut worden für kernspektroskopische Anwendungen. Wideröe hat zudem ein Zweistrahl-Betatron entwickelt, bei dem neben dem positiven auch der negative Anstieg des Sinusfeldes für die Beschleunigung genutzt wird. Dabei kreist abwechselnd im einen oder im anderen Richtungssinn ein Elektronenstrahl in der Röhre. Mit den beiden Strahlenbündeln können entweder gleichzeitig zwei Patienten therapiert oder Stereo-Röntgenbilder für die Materialprüfung erzeugt werden (Bild 6). Ein komplettes Betatron mit Abschirmung aber ohne Steuerung wiegt rund 5 Tonnen.

Hochschuldozent und Fachberater

Parallel zu seiner Forschungs- und Entwicklungsarbeit in der Industrie hat Wideröe rund 20 Jahre lang als Privatdozent und später als Titularprofessor Vorlesungen an beiden Zürcher Hochschulen gehalten. Er setzte sich mit der Wirkung ionisierender Strahlen auf menschliches Zellgewebe auseinander und wies nach, dass die mittels Betatron erzeugten hochenergetischen Strahlen für die Behandlung von Tumoren in vielen Fällen besser geeignet sind als die bis anhin verwendeten "weichen" Röntgenstrahlen. Eine von Wideröe entwickelte Zweikomponententheorie ermöglichte die quantitative Berechnung der Strahlenreaktion und die Erstellung individueller Bestrahlungsprogramme für jede einzelne Therapie. Wideröe arbeitete auch häufig als Referent bei Fachkongressen mit und war für verschiedene Institutionen beratend tätig. Unter anderem wirkte er am Europäischen Kernforschungszentrum CERN in Genf und beim Forschungssynchrotron DESY in Hamburg als Berater mit. Seine Publikationsliste ist recht umfangreich. Auch nach seiner Pensionierung 1968 nahm er weiterhin regen Anteil an den Ergebnissen der Atom- und Teilchenforschung.

Wideröe war mit der Norwegerin Ragnhild Christiansen verheiratet. Das Ehepaar hatte eine Tochter und zwei Söhne und wohnte in Nussbaumen bei Baden. Rolf Wideröe verstarb am 11. Oktober 1996.

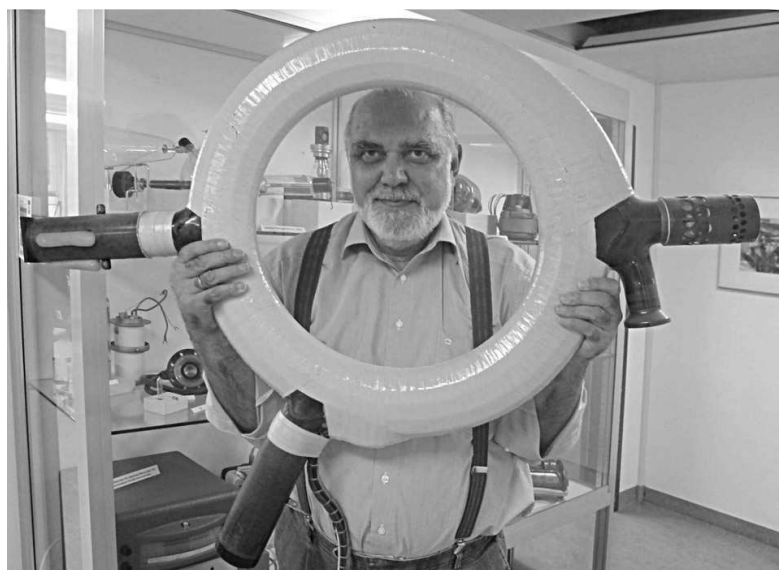
Wegweisende Patente

Zwischen 1943 und 1971 hat Wideröe mehr als 50 Patente angemeldet. Die meisten seiner Patente beziehen sich auf spezielle Anwendungen oder Detailverbesserungen des Betatrons. Darunter fällt auch das erwähnte Zweistrahlbetatron. Ferner entwickelte Wideröe magnetische Linsen zur Strahlfokussierung sowie diverse Schwenk- und Kippmechanismen für Betatrons und Therapietische. Zudem hat Wideröe für seine Zeit absolut neuartige Ideen in Patenten niedergelegt. Mit dem Titel "Anordnung zur Herbeiführung von Kernreaktionen" patentierte er 1943 einen Speicherring für gegenläufig kreisende, kollidierende geladene Teilchen, den er als "Kernmühle" bezeichnete (Kasten 2). Wegen des Krieges wurde das Patent jedoch erst 1953 publiziert. Ein anderes Patent betrifft ein Synchrotron mit Driftröhren. Es wurde 1949 eingereicht mit dem Titel: "Anordnung zur Beschleunigung von elektrisch geladenen Teilchen". Diese beiden Patente sind in [5] als Faksimile abgedruckt. 1958 hat Wideröe sogar für einen Kernfusionsreaktor ein Patent beantragt.

Ehrungen

Für seine wissenschaftlichen Arbeiten wurden Rolf Wideröe zahlreiche Ehrungen zuteil. 1962 verliehen ihm die Rheinisch Westfälische Technische Hochschule Aachen sowie die Universität Zürich die Ehrendoktorwürde und die ETH Zürich den Titel Titularprofessor. Die Stadt Würzburg, in der Wilhelm Conrad Röntgen 1895 die nach ihm benannten Strahlen entdeckt hatte, verlieh Wideröe 1971 den Röntgenpreis. 1973 wurde Wideröe zum Mitglied der norwegischen Akademie der Wissenschaften ernannt. 1983 wurde er Ehrenmitglied der Schweizerischen Gesellschaft für Strahlenbiologie und Strahlenphysik (wie unsere Gesellschaft damals hiess). Anlässlich seines neunzigsten Geburtstages 1992 veranstaltete die ETH Zürich zu seinen Ehren ein Fachsymposium. Ab den 1970er Jahren ist das Betatron zunehmend durch wesentlich leistungsfähigere Beschleuniger verdrängt worden. Für medizinische Therapien und für die Materialprüfung setzten sich mit Hochfrequenz betriebene Linearbeschleuniger durch, die kompakter und auch preisgünstiger sind. Für Protonen-Beschleunigung sind Betatrons nicht geeignet. In der Teilchenforschung kamen deshalb Synchrotrons und später immer grössere Speicherringe zum Einsatz. Trotzdem verdient Wideröes grundlegende Pionierarbeit heute noch immer Bewunderung.

Wolf Seelentag with a betatron tube – to give an idea of sizing



KSR/CPR Position paper on radiation and sex odds ratio

This interesting KSR/CPR position paper can be downloaded at:

<http://www.bag.admin.ch/ksr-cpr/04309/04310/index.html?lang=fr>



Eidgenössische Kommission für Strahlenschutz und Überwachung der Radioaktivität
Commission fédérale de protection contre les radiations et de surveillance de la radioactivité
Commissione federale della radioprotezione e della sorveglianza della radioattività

**Position of the KSR/CPR on the paper by Scherb and Voigt
concerning the potential link between radiation and sex odds**

2010 Kuwait Prize in Applied Sciences for Outstanding Contributions to Biomedical Technology

Dr. Habib Zaidi is the recipient of the prestigious 2010 Kuwait Prize in Applied Sciences given by the Kuwait Foundation for the Advancement of Sciences (KFAS) for “*Outstanding Contributions to Biomedical Technology*”. The prize consisting of *100'000 US\$ cash sum, KFAS shield, gold medal and certificate of recognition*, was awarded by his Highness the Emir of Kuwait at a ceremony held in Kuwait City on December, 21st 2011.

The KFAS prize is one of many received by Dr Zaidi in his multifaceted scientific career. His research efforts have been also recognized by the 2007 Young Scientist Prize in Biological Physics given by the International Union of Pure and Applied Physics (IUPAP), the 2004 Tetalman Memorial Award given by the Society of Nuclear Medicine and the 2003 Young Investigator Medical Imaging Science Award given by the Nuclear Medical Imaging and Sciences Technical Committee of the IEEE.

Dr Zaidi is senior physicist and head of the PET Instrumentation & Neuroimaging Laboratory at Geneva University Hospital and faculty member at the medical school of Geneva University. He is also Professor at the University Medical Center of Groningen (The Netherlands) and visiting Professor at Ecole Nationale Supérieure d'Electronique et de ses Applications (ENSEA, France). He is a senior member of the IEEE and former Vice Chair of the professional relations committee of the IOMP. He was guest editor for 3 special issues of peer-reviewed journals dedicated to *Medical Image Segmentation*, *PET Instrumentation and Novel Quantitative Techniques*, and *Computational Anthropomorphic Anatomical Models* and serves on the editorial board of many leading journals in medical physics and medical imaging.

Dr. Zaidi has been an invited speaker of many keynote lectures at an International level, has authored over 300 publications, including ~130 peer-reviewed journal articles, conference proceedings and book chapters and is the editor of three textbooks on *Therapeutic Applications of Monte Carlo Calculations in Nuclear Medicine*, *Quantitative Analysis in Nuclear Medicine Imaging* and *Multimodality Molecular Imaging of Small Animals*.

Habib Zaidi, Geneva

Report on the 2011 AAPM International Scientific Exchange Program (ISEP)

Diagnostic Physics Course

Patras, Greece, June 17-20, 2011

<http://aapm2011.upatras.gr/>

The AAPM-ISEP workshop in Diagnostic Physics was held on June 17-21, 2011 at Patras University in Patras (Greece). The course organizers were **Prof. George Nikiforidis** and **Prof. George Kagadis** from the University of Patras, Greece (local organizers) and **Prof. Mahadevappa Mahesh** (AAPM-ISEP). The main topics included Medical Imaging and its Quality Metrics, Digital Imaging, Imaging Modalities, Patient Dose and its Reduction, Radiation Safety, Image Display and Perception, Nuclear Medicine, Shielding Calculation, Quality Control and Medical Physics Certification. Nearly 21 hours of academic material were delivered at Patras House of Sciences Center – new and beautiful building with interesting scientific exhibits. There was also a visit to the Patras University Hospital where the attendees were shown the classic and modern clinical equipment.

More than 90 participants registered for the course. Their experience range was very broad; from students to senior physicists. They represented 10 countries of Europe, Asia, and America. The course faculty were Distinguished **Professor William Hendee** from Medical College of Wisconsin, **Professors Donald Frey** from Medical University of South Carolina, **Anthony Seibert** from the University of California Davis, **Mahadevappa Mahesh** from Johns Hopkins University School of Medicine, **Eugene Lief** from White Plain Hospital – Marsden Medical Physics (USA), and **Habib Zaidi** from Geneva University Hospital (Switzerland).

The faculty had a difficult task of giving talks interesting to a broad spectrum of Diagnostic Physicists attending the course. Nevertheless, the course reached its goal. The lectures were well-attended and were highly interactive. The attendees asked many questions and continued to communicate with the faculty and with each other in their free time. Many participants were interested in CAMPEP credits which were offered to them. The University of Patras has well-established traditions in Medical Physics. Several University Rectors were Medical Physicists, including **Professor G. Panayiotakis** who is Rector now. One of the organizers of this course **Professor Nikiforidis** has served as a Dean of the School of Medicine. Several world-famous physicists had been working here. The world-famous graduate program here awards 12-15 MS degrees and 6-8 PhD diplomas in Medical Physics annually.

Unfortunately, during the course one of the world legends in Medical Physics, Professor Emeritus **Basil Proimos**, died in a car accident at his home town on the island of Crete. This sad news along with **Professor Proimos** short biography and achievements were announced to the participants by **Professor Nikiforidis**. Overall, the course was a success. The material was comprehensive and relevant to the needs of practicing medical physicists. Communication between the participants and faculty was very efficient. The social program included an opening reception and a gala dinner. Transportation between the hotel and the Science Center was perfectly arranged. All that was possible because of tireless efforts of local organizers: **Professor George Nikiforidis** and **Professor George Kagadis** from Patras University. Their work was appreciated by the AAPM and was acknowledged by special plaques provided to the local organizers by the AAPM.

Habib Zaidi



CALENDAR 2012

- 27.02.-02.03. Winterschule Pichl
Kurs 1: Audiologie
Kurs 2: Strahlentherapie (parallel zu Kurs 1)
- 05.03.-09.03
A-Pichl Kurs 3: Radiologie
www.sgsmp.ch
- 23.-24.03 „IMRT Bestrahlungsplanung – Workshop mit praktischen Übungen“
D-Würzburg strahlentherapie.uk-wuerzburg.de/index.php?id=7794
- 25.-29.03 Radiobiology & Radiobiological Modelling in Radiotherapy
UK-Port Sunlight www.ccotrust.nhs.uk/RdblgcourseMarch2012.pdf
- 17.-21.04. Hands-on course, Quality Assurance of Advanced Radiation Therapy
NL-Amsterdam www.inholland.nl/medicaltechnology
- 19.-21.04. 16th Annual SASRO Meeting
Winterthur www.sasro.ch/2012/
see announcement page 19
- 03.-05.05 Alpe-Adria-Meeting (AAMP)
I-Triest www.fisicamedica.org/aamp2012/
- 04.-05.05. DEGRO - Workshop für Klinische und Administrative Informatik (KAI) in der
D-Freiburg Strahlenheilkunde
kai.kongress.de.fc-host27.de/index.php?Year=2012
- 26.-29.09 Jahrestagung der DGMP
D-Jena www.conventus.de/dgmp2012/
- 15.-16.11 Annual General Meeting
Biel www.sgsmp.ch



And please, if you participate in any conference / meeting, think of writing a few lines or sending an picture for the rubric “recent meeting”.

THANK YOU!

16th Annual SASRO Meeting

19–21 April 2012, Winterthur

VENUE

**Kongress- und Kirchgemeindehaus Liebestrasse,
Winterthur**

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Bernadette Manser, Frances Fromberg

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Kantonsspital Winterthur
Klinik für Radio-Onkologie
Brauerstrasse 15
Postfach 834
8401 Winterthur
Tel.: +41 52 266 26 45
Fax: +41 52 266 35 25
eMail: sasro-winterthur@ksw.ch

Further information is available at
www.sasro.ch/2012



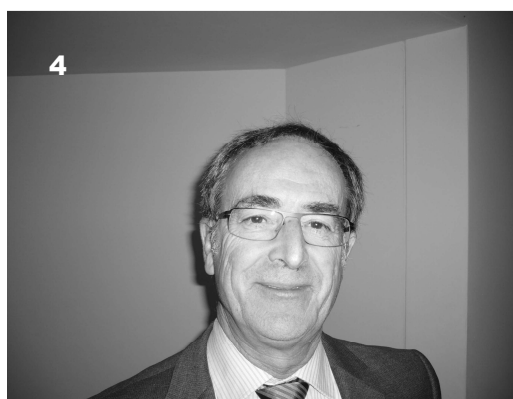
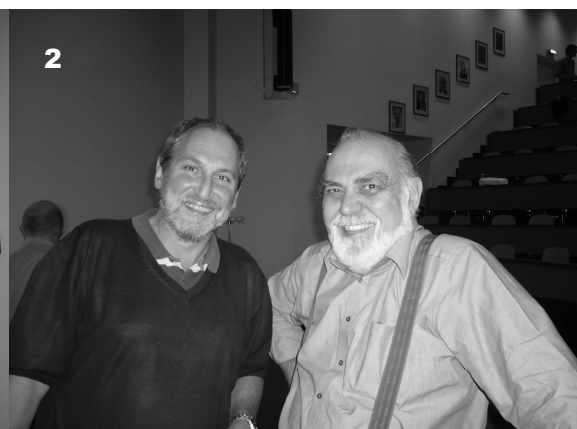
An event from SASRO organized by Kantonsspital Winterthur

SASRO
Scientific Association of Swiss Radiation Oncology

KSW
KANTONSSPITAL WINTERTHUR

PERSONALIA

Some photos from the November 18 retirement festivities in Bern



Clockwise from top left

- 1 Peter Manser and Ernst Born
- 2 Markus Notter and Wolf Seelentag
- 3 SGSMF board; Jean-Yves Ray, Daniel Vetterli, Raphaël Moeckli, Stephan Klöck, Peter Manser, Hans Roser, Werner Roser, Markus Notter, Frédéric Corminboeuf
- 4 Leon André
- 5 Walter Burkard
- 6 Jean-François Germond

IMPRESSUM

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Redaktion:	Shelley Bulling Centre d'Oncologie des Eaux-Vives 26 rue Maunoir 1207 Genève 022 319 77 30 sbulling@eaux-vives.com	Regina Müller Paul Scherrer Institut Schule für Strahlenschutz 5232 Villigen PSI Tel. 056 310 2480 regina.mueller@psi.ch
Sekretariat der SGSMP:	c/o Silvia Kleiner Bernstr. 103a 3052 Zollikofen,	Daniel Vetterli Radio-Onkologiezentrum Biel Rebenweg 38 2501 Biel Tel.: 032 366 8111 daniel.vetterli@radioonkologie.ch

AUTORENHINWEISE

Auch Sie sind aufgerufen, an der Gestaltung unseres Bulletins mitzuwirken. Erwünscht sind alle Beiträge, welche für die Mitglieder unserer Gesellschaft von Interesse sein könnten, z.B.

- ✓ Berichte von Tagungen, Arbeitsgruppentreffen, Seminaren usw.
- ✓ Berichte über die Arbeit in verschiedenen Gremien und Kommissionen
- ✓ Kurz gefasste Ergebnisse von Umfragen, Vergleichsmessungen etc.
- ✓ Kurzporträts einzelner Institute (apparative Ausrüstung, Schwerpunkte der Arbeit usw.)
- ✓ Bericht über nationale und internationale Empfehlungen
- ✓ Kleine Mitteilungen
- ✓ Photos
- ✓ Karikaturen
- ✓ Hinweis auf Publikationen (Bücher, Zeitschriften)
- ✓ Hinweis auf Veranstaltungen aller Art (Tagungen, Seminare...)
- ✓ Lesenswerte Kurzartikel aus Zeitungen oder Zeitschriften (wenn möglich im Original)
- ✓ Personalien (Ernennungen, Stellenwechsel usw. von Mitgliedern)

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Redaktionsschluss für das Bulletin Nr. 76 (2/2012): 05.2012

Title	Name (Function)	Professional Address	Tel. Office * = Sekretariat ** = Zentrale	E-Mail	Address Private (Postanschrift)	Tel. Private
PD MER Dr.	Raphaël Moeckli President	Inst. Univ. de Radiophysique (IRA) Rue du Grand-Pré 1 1007 Lausanne	021 314 46 18 021 314 80 68* & **	raphael.moeckli@chuv.ch	Chemin du Collège 1 1091 Aran	021 799 18 30
Dr.	Stephan Klöck Vice-president	Radio-Onkologie / Medizinische Physik Universitätsspital Zürich Rämistr. 100 8091 Zürich	044 255 34 62 044 255 29 31 * 044 255 11 11 **	stephan.kloeck@usz.ch		
Dr. phil. nat.	Daniel Vetterli Secretary	Radio-Onkologiezentrum Biel Rebenweg 38 2501 Biel	032 366 81 15 032 366 81 11*	daniel.vetterli@radioonkologie.ch	Reichenbachstrasse 42a 3052 Zollikofen	031 911 63 75
Dr. phil. II	Werner Roser Treasurer	Paul Scherrer Institut 5232 Villigen PSI	056 310 35 14	werner.roser@psi.ch	Oberdorfstrasse 27b 5245 Habsburg	056 442 03 38
Dr. sc. nat.	Peter Manser Chair science committee	Abteilung für Medizinische Strahlenphysik Insel- spital - Universität Bern 3010 Bern	031 632 37 71 031 632 24 29 * 031 632 21 11 **	peter.Manser@insel.ch	Thunstrasse 76 3400 Burgdorf	079 484 97 41
Dr.	Hans W. Roser Chair education committee	Radiologische Physik Universitätsspital Basel Petersgraben 4 4031 Basel	061 328 61 42 061 265 25 25 **	hrosor@uhbs.ch		
Dr. rer. nat.	Frédéric Corminbœuf Chair Professional Affairs	Centre de Radio-Oncologie Clinique la Source Av. Vinet 30 1004 Lausanne	021 642 70 00	f.corminboeuf@lasource.ch	En Faily 90 1679 Villaraboud	078 775 71 59
Dr. med.	Markus Notter	Service de Radiothérapie Hôpital Neuchâtelois 2303 La Chaux-de-Fonds	032 967 21 51* 032 967 21 11**	markus.notter@ne.ch	Neumattstr. 1 5033 Buchs AG	
MSc.	Jean-Yves Ray	Service de radio-oncologie Hôpital de Sion Grand-Champsec 80 1951 Sion	027 603 45 12 027 603 45 00 * 027 603 40 00 **	jyves.ray@rsv-gnw.ch		