Volume 18, Number 1 June 2002

MEDICAL PHYSICS WORLD

Bulletin of the International Organization for Medical Physics

IOMP Home Page Address: http://www.iomp.org

72 Adhering National Organizations 2002

Alergia • Argentina • Australia • Austria • Bangladesh • Belgium • Brazil • Bulgaria • Canada • Chile • Colombia • Cuba • Cyprus • Denmark • Ecuador • Egypt • Estonia • Finland • France • Georgia • Germany • Ghana • Greece • Hong Kong • Hungary • India • Indonesia • Iran • Ireland • Israel • Italy • Japan • Jordan • Korea • Lithuania • Malaysia • Mexico • Moldova • Morocco • Nepal • Netherlands • New Zealand • Nigeria • Norway • Pakistan • Panama • People's Republic of China • Philippines • Poland • Portugal • Romania • Russia • Singapore • Slovenia • South Africa • Spain • Sri Lanka • Sudan • Sweden • Switzerland • Tanzania • Taiwan • Thailand • Trinidad & Tobago • Turkey • Uganda • Ukraine • United Kingdom • United States • Venzuela • Zambia • Zimbabwe

President's Message – *Oskar A. Chomicki*

Oskar A. Chomicki
President of IOMP

I know that editorials are not always read, but I hope that if you perhaps had a look at my previous editorial in the December 2001 issue of the MPW Bulletin you could find some ideas concerning the various responsibilities of a medical physicist worth pondering.

In this issue, limited by narrow space, I would like to touch upon yet another problem of considerable importance to all of us who do research and want the results of their work be known, namely that of having our papers published so as to reach the largest possible number of prospective readers the world over. It seems obvious that the condition 'sine qua non', to let oneself be known in the 21st century is to publish one's work in English-language journals. This need is well understood that in many countries researchers avoid publishing in their national languages and send their papers for publication either in the English version of their national journals or in the internationally recognised journals.

In 1995 at the Medical Physics Congress at Rio de Janeiro, I presented a paper: "Medical Physics in Industrial and Developing Countries in the Last 25 Years", in which, among other things, I examined the problem of accessibility to publishing in Physics in Medicine and Biology (PMB) and Medical Physics. The study was made on five samples of papers randomly chosen from the PMB in the years 1966-67, 1975-76, 1989-87 and 1990-91. The abstracts were stopped being published in PMB in 1992, so no later data were available. Medical Physics was examined only for three years, i.e. in 1981-82, 1987-88 and 1990-91.

It turned out that publications from the USA and UK ran into hundreds per year, those from Canada, Germany, Japan and Scandinavia came to hundreds, whereas those from other industrial countries (mostly European) never exceeded 50. Papers from developing countries averaged 3 per year, with several countries, such as Argentina, Hawaii, Hong-Kong, Indonesia, Nigeria and Taiwan represented only by one paper over a period of 25 years. The emerging democratic countries of Central and Eastern Europe fared better.

In the years under that study, Medical Physics did not readily accept papers from other countries than the US, Canada, and to a smaller extent, Europe, whereas PMB proved to be far more open to publications by authors outside UK. In the years 1987-88 and 1990-91 it became a truly international journal fulfilling its commitments as an official journal of several medical organisations both international (IOMP, for example) and national.

The accessibility of medical physicists to publishing their work in the internationally recognised journals, as exemplified in PMB and Medical Physics, depends, of course, primarily on the standard of their work, but probably also on the requirements and preconceptions held by the respective Editorial Boards. One may wonder how much the situation has changed since 1991, which may be worth examining by carrying out a study using, for example, the Current Contents.

The latest initiative undertaken by the Executive Committee of the IOMP to facilitate access of JACMP and Medical Physics to the medical physicists could help a long way in resolving the above mentioned issue.

Again I would appreciate receiving some response especially from those of you who have had problems in acquiring access to international English-language journals.

Table of Contents

Need your help to collect data for Recognition of the Medical Physics Profession by the International Labor Office

Azam Niroomand-Rad, Ph.D., Vice President, IOMP

In the past ten years IOMP Officers have intensified their efforts in pursuing international recognition for the medical physics profession by the International Labor Office (ILO). Such recognition would require a revision of the International Standard Classification of Occupations (ISCO-88) that was approved by the ILO Governing Body at the 14th International Conference of Labor Statistics (ICLS) in 1998.

Since 1995, IOMP Past Presidents Dr. Keith Boddy and Dr. Colin Orton as well as myself have been in direct contact with key individuals at ILO (such as Dr. Mehran, Past Director of Bureau of Statistics and Dr. Eivind Hoffman, Chief of the Statistics Section). The up dating and extension of an international classification like ISCO-88 is a very slow process. It involves providing many statistical data to ILO, including information such as the number of medical physicists in various countries, the number of years required for education and training of medical physicists, the number of professional and scientific organizations for accreditation, registration or licensure in various countries. In addition, information needs to be provided regarding the definition of medical physics as a profession, treatment of this profession by national classification of occupations, as well as a depiction of the various job descriptions of the medical physicists that varies in different countries.

However despite the development of medical physics since the turn of last century, the profession has not been included in most of the national classification of occupations. Moreover, despite the practice of medical physics worldwide, this profession has not grown as much in many developing countries. Medical physicists worldwide, especially those in developing countries are desperately in need of proper education, training and documentation of their profession in order to justify their employment to government and other health authorities. We believe that without international job classification, many authorities use this as an excuse not to establish educational programs or new job opportunities for medical physicists. With the rapid advancement of technology in cancer diagnosis and treatment there is a great shortage of qualified medical physicists worldwide and this significantly compromises the qual-

(continued on page 2)

Need your help to collect data… *continued from page 1)*

ity of health care provided to people. Therefore one of our task in communicating with ILO staff was to point out this "Catch 22" situation to them.

Since September 18, 2001, I have had several communications with Dr. Young and Dr. Eivind Hoffman and have learned that ILO intent to establish a web-based system (hopefully soon) to collect data to consider the proposal for revision of ISCO-88 at the 17th ICLS in 2003-04. If approved, the ISCO-88 will be up-dated and taken to the 18th ICLS in 2008-09 for final approval. According to Dr. Hoffman, the proposal for inclusion of medical physics as subdivision of physics (2111) consists of addition of two digit extension to the unit group code: "-xy". Such extensions will be proposed where it has been made clear that international exchange of occupational information, including statistics, on these groups will warrant their separate identification within the ISCO-88 structure.

To achieve identification of medical physics profession by ILO we have been asked to provide a comprehensive list of the countries where medical physics has been identified separately in the corresponding national standard occupational classifications. According to ILO, the national custodian for the classification is likely to be either the national statistical office, or the national employment service. We believe in the last ILO survey, Dutch was the only country with medical physics classification. We appreciate hearing from you if medical physics is listed in your national standard occupational classifications as early as possible.

I hope this brief write up will demonstrate the complexity of this issue and the need for your collaboration.

Secretary General's Report

Gary D. Fuller, Ph.D., Secretary General, IOMP

Appointment of a New Finance Committee

An important new IOMP development for 2002 is the restructuring and development of a functional Finance Committee under the direction of George Mawko, PhD, from Halifax, Canada. George served previously as the Treasurer of the Canadian society and is joined on the Finance Committee by James Smather, Peter Smith, Nisakorn Manatrakul and Gary Fullerton. The committee now has more than 20 years of Treasurer Experience in multiple national and international medical physics organizations. IOMP finances are in good shape and plans are in development to assure that they remain that way while providing for a wider range of funded IOMP programs.

Sponsored Regional Programs in 2002

The Education & Training, Science, and Professional Relations Committee all report plans for multiple regional programs in conjunction with the support of Regional IOMP Chapters or clusters of national members. Details of planned and completed programs are posted on the IOMP web page at http://www.iomp.org. The Executive Committee commends the committees for their hard work and encourages additional submission of grant applications to support programs in 2002 and 2003. Applicants from national members are encouraged to work with the officers of their national member society to assure that grants can be funded. The National Member Society must be in good standing to receive an award, which means that dues must be current and the IOMP Secretariat must have updated information on the society. Typical grants range from $2000 to $4000.

New Ideas for 2002

The IOMP Officers continue to work on the concept of a biennial World Congress for Medical Physics (WCMP). These medical physics congresses would be in held in conjunction with one of the IOMP Regional Chapters but only in those years that do not conflict with the World Congress for Medical Physics and Biomedical Engineering. The first WCMP could be as early as 2005. The IOMP Executive Committee has asked the IFMBE and IUPESM to consider the option of moving the combined Congress to a four-year cycle. To date there are no appreciable obstacles to this plan outside of the inertia of present Congress planning. The IOMP Officers would be pleased to learn of member opinion on this or any other program that could better serve the needs of IOMP members.

Report from the Education and Training Committee (ETC)

Slavik Tabakov, PhD, Chairman ETC

During the period October 2001 - March 2002 the Education and Training Committee supported a Regional Course on Advances in Diagnostic Radiology and Nuclear Medicine Physics in Cairo, Egypt (the course was later postponed for 2003). Additionally ETC disseminated information about the course in Vrije Universiteit Brussel & Universiteit Gent (Training In Physics of Medical Imaging, Radiation Therapy, Nuclear Medicine and Related Radiation Protection) and about the International Medical Physics College in ICTP, Trieste, Italy. Some other training activities were voted positively (on the basis of their contents), but have not been supported on the basis of problems with IOMP fees arrangements.

ETC is continuing the collection of Graduate Education Programs for the Global Directory and encourages all colleagues to submit information for their courses.

Activities of the Association of Medical Physicists in Georgia: the Present Situation and Perspectives

E.G. Gedevanishvili and A.B.Kapanadze
Oncological Scientific Centre, Tbilisi, Georgia (Translated from Russian by O.A.Chomicki)

The advancement of the present-day medical physics is closely related with the construction and development of diagnostic and therapeutic equipment and the introduction of new medical techniques. The development of these new techniques requires that specialists (i.e. medical physicists and engineers) update their knowledge of the possibilities and effectiveness of the application of the equipment currently available for the treatment of patients, in which medical physics and biomedical engineering play an increasingly important role.

In countries where medical physics is still at an early stage of development, it is radiation physics that so far has usually become the first and foremost branch of medical physics. It seems that the European Federation of Medical Physics has adopted this policy as long as it forms a foundation for the prospective application of physics methods in other branches of medicine.

The Association of Medical Physicists of Georgia was founded in 1994 on the basis of the Radiation Therapy Planning of the National Oncological Centre of Georgia. It represents hospital physicists are employed directly in medical establishments and who, together with medical doctors, take part in radiotherapy, radiation diagnosis, etc. Currently, the membership of the Association is 18 , including 8 medical physicists. Since 1996 the AMPG has been a member of the International Organization for Medical Physics, and in 1997 it participated in the World Medical Physics and Biomedical Engineering Congress in Nice (France).

It is well known that education and training of medical physicists is most essential for the formation of the occupational status and determination of the responsibilities of this professional group. Ideally, what should form a basis for medical physics education is a well organized system incorporated into university structures in the form of a separate department or faculty. In the first stage, the fundamentals of physics, mathematics and other basic subjects should be taught. It is only in the second stage that medical physics per se is included, and the third stage ought to be dedicated to practical training in medical establishments. Having completed the above course a physicist may eventually be accorded the title of a medical physicist.

In the course of developing advanced education, perfection and practical application of experience, possibilities should be created to attain higher university degrees in medical physics.

In Georgia, all the above stages in medical physics education and training are being implemented, however the second and third stage are combined together. Practical training is arranged under the supervision of highly qualified medical physicists. In the course of practical training graduate medical physicists can carry out their specialized studies and/or do research, as well as acquire practical knowledge in an effective and economically justified way.

The fundamental aim of the activity of the AMPG is to ensure that the preventive, diagnostic and therapeutic procedures in medicine, as practiced in Georgia, are fully provided with adequate assistance from the point of view of physics, mathematics and computer science. With this end in view, the AMPG , among other things, has carried out the following studies: a questionnaire on the breast cancer been constructed and sent out to 2000 patients as a form of a screening test, as well as a small booklet has been written and published (in two languages: Georgian and Russian) to provide the general population with some guidance on the relation between diet and cancer. The members of the AMPG have also published 25 research and clinical papers dealing with improvement in radiation therapy of cancer cases, and with the development of computer programs for a comprehensive diagnosis of the carcinoma of the breast and lungs. The Association is also responsible for the certification of equipment employing novel techniques and used for the visualization of body organs. AMPG has made use of an “ AVIO 2000” thermograph with digital computer processing of information, a haemodynamic “Medelya@ tomograph (computer and differential impedance meter) developed by Professor G.Gedevanishvili (Georgia), as well as a programmatic unit “Corona-TW” (Kirlian’s effect) developed by Professor K.Korotkova (Russia), for imaging purposes.

The comprehensive approach outlined above has also been adopted in the case of assessing the health problems of the so-called “liquidators”, i.e.workers employed on the spot at the elimination of the effects of the Chernobyl nuclear power station accident (project RER 6/009 with the assistance of the IAEA). The members of the AMPG have participated in the preparation of the questionnaire on radiotherapy used in awarding the certificate of a radiologist.

From our scientific and practical experience it has become clear that the educational policy in medical physics in our country should be considerably modified. The bio-medical part in the fundamental stage of the education should be significantly enlarged, whereas in the later stages practical training in medical physics should be combined with bio-medical practice. This approach is a result of the fact that before our eyes a new holistic scientific paradigm is evolving, which is a doctrine that emphasizes the necessity of looking at the whole person, and which requires that in theory and practice alike a cross-disciplinary approach should be adopted. In our view, medical physics may be regarded to have a potential, albeit not as yet fully exploited, to unite and bring together other fields of science and medicine. The new educational approach in medical physics should take account the above concepts.

Finally, it should be stressed that the activities of the AMPG have continuously been given full support by the National Oncological Centre of Georgia. Without this support, and particularly without the personal participation and encouragement of Professor R.Ya. Wepkhvadze, President of the NOC there would be little chance of success.

The application and implementation of sophisticated medical techniques have become one of the most important social, scientific and economic aims in Georgia, which cannot be considered in the absence of integration with the world’s science and economy, or without close co-operation involving national and international associations or organizations of various professions.

The history of our Association has shown that the foundations of this organization have been laid by specialists whose education and training had been acquired at various renowned institutions in Russia such as the Institute of Medical Radiology , the N.N.Blokhin Oncological Research Centre in Moscow, the Petrov Institute of Oncology in St.Petersburg, etc. It is clear that medical physicists in the countries of the former Soviet Union are all united due to traditional personal links, common educational background, common language as well as in view of similar every-day problems which may be solved in co-operation with the support of international organizations.

Status AAPM/IOMP Libraries March 27, 2002

Marilyn Stovall, Ph.D., Curator of IOMP Libraries

We currently have 87 active libraries in 51 countries, with one new library added since November 2001. A list of the libraries is available at www.IOMP.org.

During the first quarter of 2002, seven donations have been initiated, four of which are large and will be spaced over several months. The annual budget will support shipping reimbursement for approximately ten donations. Due to the large size of these early donations, shipping funds for this year are likely to be spent quickly.

IOPP continues to donate five books to new libraries and AAPM coordinates the donations of Medical Physics journal subscriptions. Each quarter, The Society for Radiological Protection mails their quarterly publication, The Journal of Radiological Protection, to all active libraries. The Cyprus Association of Medical Physics and Biomedical Engineering donated CDs of proceedings of Medicon, held June 14-17, 1998, and these were mailed to the libraries. We encourage other organizations to donate CDs of meeting proceedings; these are particularly useful to physicists who can not attend meetings abroad.

A new request for updated contact information will be sent to libraries this quarter. Only those libraries which return information will be considered active and eligible to receive donations.

Anyone wishing to donate materials or establish a library is asked to contact the curator.

Pocket sized
X-ray meters
for service and QA
PREFERRED
Learn why Unfors meters are preferred by many of your colleagues.
Visit www.unfors.se
Simplicity
kVp, dose, mAs and time - all in one!
UNFORS INSTRUMENTS
Uggledalsvägen 27, S-427 40 Billdal, Sweden
Phone: +46 31 910952, Fax: +46 31 910950
www.unfors.se info@unfors.se
The Unfors Concept

47 WATERPROOF ION CHAMBERS FOR THERAPY QA!
New
THEBES™ II
THERAPY BEAM EVALUATION SYSTEM
THEBES II waterproof ion chamber array in water tank.
(computer not included)
Faster, easier TG #40:
• Dynamic wedge mapping
• Light field/radiation field coincidence
• Field size, beam size
• Flatness and symmetry
• Penumbra and beam constancy
• Central axis chamber for isocenter reference
• Real-time dose maps for service and setup
No electronics near the beam
• Ion chamber reliability in air or water
• Ion chamber long-term stability
• Ion chamber accuracy: 2% absolute or 1% relative
• Ion chamber reproducibility every time
THEBES™ II CONTOUR MANAGER
Powerful information management
• Microsoft® Access or an SQL Server compatible database
• Status bars
• Dockable toolbars
• Dockable Windows®
– Graphical contour mapping
– Comparison
– Overlay
– Percent depth dose
– Trending analysis
VICTOREEN
INOVISION
6045 Cochran Road • Cleveland, OH 44139-3303 • Phone: 800.850.4608 / 440. 248.9300 Fax: 440.349.2307 • www.inovision.com

Pilot Project to study the feasibility of remote education/consultation of Medical Physics using the Internet

We would like to report on a project designed to promote the use of the Internet for real-time interactive communication among the Medical Physics community. Dr Milton Woo at the Toronto-Sunnybrook Regional Cancer Centre in Canada and Professor Kwan-Hoong Ng at the University of Malaya in Malaysia have been collaborating on a tele-education project, where a class of 7 medical physics students at the University of Malaya, Kuala Lumpur, Malaysia, are participating in a series of hands-on lectures and demos given by volunteer lecturers in North America. One objective is to optimize the method with which the interactive communication is provided and the logistics of communication such as the time zone difference and the availability of the facilities. The second objective is to determine the optimal contents and formats of such a remote education project, and to assess the benefits of the course.

The emphasis is on a 'Shared Screen' environment so that actual medical physics application software packages can be demonstrated and practiced upon. A major advantage of this method is the low cost of the facilities and the flexibility offered to lecturers who are willing to donate their time.

One of the objectives of the project is to survey the interest and demand for this mode of tele-education, as well as to assess the availability and speed of the Internet in various parts of the world. Anybody interested in learning more about the project, or interested in a brief demo of this mode of communication, or is able to provide any information on the questions of demand and Internet availability, please contact either Dr Woo (milton.woo@tsrcc.on.ca) or Professor Ng (dwlng@tm.net.my).

Training Materials Emerald - II (European Medical Radiation Learning Development) - Internet Issue

Slavik Tabakov, Chairman ETC on behalf of EMERALD Consortium

The training materials developed by the EMERALD Consortium under the EC Leonardo project for European Medical Radiation Learning Development (EMERALD) have now been introduced in more than 40 countries all over the world. These materials consist of Workbooks with training tasks, CD-ROMs with image database and Course Guide in Medical Radiation Physics Training - all these are in three volumes (modules): X-ray Diagnostic Radiology, Nuclear Medicine and Radiotherapy. Completion of each task in each module leads to certain competencies. The second phase of the project – EMERALD II (EMERALD Internet Issue) – has further developed the existing training materials, facilitating their use via the Internet. These new electronic training materials include Internet distributable e-Workbooks with hyperlinks to appropriate digital images. The e-Workbooks are in Adobe Acrobat PDF format and the images - JPG format in HTML frames. These are used through an existing Internet browser (at least Netscape 4 or Internet Explorer 5). The use of the new training materials requires simultaneous work with two browser windows. The main window includes a large text frame for the PDF file, a contents frame for task navigation, and a thumbs frame for browsing the images. The additional image window contains the respective image (hyperlinked to the text) and image caption. The new EMERALD electronic training materials can be used either through the Internet, or from CD-ROMs (where the Web site is engraved together with the Image database). Additionally the new materials include more images and new tasks in all three training modules. The test introduction of EMERALD II has proved its high educational value as a resource, which could be used in any training scheme. The EMERALD training materials are now temporarily available free from its web site www.emerald2.net . From the same web site one can also download free the e-book "Medical Radiation Physics - a European Perspective", which contains information about the education and training activities of many European countries.

Obituary

By: Colin G. Orton, Ph.D., Past IOMP President

Lawrence H. Lanzl, Ph.D., Past President

December 23, 2001 saw the passing of a great medical physicist and longtime supporter of international medical physics, Lawrence H. (Larry) Lanzl. Many readers will remember Dr. Lanzl from his participation in our World Congresses, and as our President from 1985-88. While President, Larry spearheaded the establishment of our bulletin, Medical Physics World, and was its first Editor.

Dr. Lanzl's career in medical physics began in the mid-1940s when he became involved in the development of the betatron for radio-therapy at University of Illinois. He later worked on the development of Co-60 and linear accelerator , and also did important pioneering work in topics such as bone densitometry, anthropomorphic phantoms for radiotherapy dosimetry, and the handling of radiation accidents. It was during the 1950s and 60s that he became interested in organizational medical physics, and performed several studies on the professional aspects of medical physics, including education, training, remuneration, and staffing requirements. Throughout his career, Dr. Lanzl was a great supporter of educational activities and he was instrumental in the formation of graduate medical physics programs at both the University of Chicago and Rush-Presbyterian St. Luke's Medical Center. In the 1970s he began his involvement in international activities, working for the IAEA in Vienna, the WHO and, ultimately the IOMP. He assisted medical physicists in development of their profession in numerous countries worldwide.

Dr. Lanzl received numerous honors during his long career. Being elected President of the IOMP was one of his proudest achievements, as also was his selection for the William D. Coolidge Award, the highest award of the AAPM, in 1978. Upon his retirement, he was honored by having the Lanzl Institute, a major radiation treatment and research center in Seattle, named after him. However, if you had asked him what he considered to be his greatest achievement, I am absolutely sure he would have responded as he did when he received the Coolidge Award "...to improve people's health, and establish the profession of medical physics, and by doing these things, to make the world a little more civilized."

Report on the 1st Asia-Oceania Congress of Medical Physics (1st AOCMP) 14-16 November 2001, Bangkok, Thailand

Kin Yin Cheung, President, AFOMP

The Organizer: The 1st AOCMP was an inaugural scientific event organized by The Thai Medical Physicist Society in collaboration with Asia-Oceania Federation of Organizations for Medical Physics (AFOMP), South-East Asia Federation of Organizations for Medical Physics (SEAFOMP) and with sponsorship from IOMP. The congress was held at the Royal Golden Jubilee Building, Bangkok-an excellent venue with good facilities for the event. Thailand did an excellent job in planning and organizing the international scientific meeting, which was very well attended and was a complete success. AFOMP and SEAFOMP congratulated Dr. Anchali Krisanachinda, Congress Chair of the Organizing Committee and President of The Thai Medical Physicist Society, and her colleagues for their remarkable work in putting up an excellent congress and for setting a very good example for other member organizations in hosting similar scientific events in the future. AFOMP and SEAFOMP also expressed their appreciation to the Organizing Committee for facilitating their Annual Council Meetings and other business meetings during the congress.

The Scientific Program: The congress was attended by 268 participants. There were 48 overseas participants coming from 20 different countries, 35 of them were from 12 AFOMP countries.19 commercial exhibitors set up their 23 booths at the congress.

The scientific program consisted of 1 plenary session, 10 invited paper sessions, 3 free paper sessions, a symposium on "Medical Physics Training in Asia", a symposium on "New Technology and Trend in Diagnostic Imaging" and 6 Refresher Courses. A total of 70 presentations (43 invited papers, 18 proffer papers, 9 posters) on both diagnostic and therapeutic aspects of medical physics were delivered at the meeting. AFOMP participants were responsible for contributing 64 % of all paper presentations (15 % by local participants and 49 % by other AFOMP participants). The presentations were of high quality and wide ranging, from the latest techniques and procedures in physics research and service to state-of-the-art equipment technology. The talks were usually followed by enthusiastic questions and discussions from the audience indicating that the contents and topics of the presentations were appropriate and of interest to the participants. It was, however, noticed that invited speakers contributed about 64 % of the papers. The figure was high as compared

(continued on page 14)

The First Euro-Asian Congress and the 5th National Conference of Medical Physics and Engineering Medical Physics - 2001, Moscow (Russia), June 18-22 , 2001

Oskar .A.Chomicki, President of IOMP

The Congress and the Conference were organised by the Association of Medical Physicists of Russia (AMPR) in co-operation with the Physics Faculty of the M.W. Lomonosov State University in Moscow. The Lomonosov University with its several dozen thousand students and hundreds of staff is among the largest universities in the Russian Federation. It not only offered its facilities to the AMPR but also provided additional prestige since Academician W.A. Sadovnitchij ,the President of the University, also became president and chairman of the programming committee of the Congress. The Congress was partly sponsored by the IOMP , and its importance was evidenced by the participation of Oskar A. Chomicki, the President of IOMP who delivered two papers: (1) The Structure and Activities of International Organisations for Medical Physics and Biomedical Engineering, and (2) Medical Physics and Biomedical Engineering Education and Training in Poland. The organisation committee was headed by professor W.A.Kostyliev, President of the AMPR, the main driving force of the Congress.

The Association of Medical Physicists of Russia (AMPR) was founded in December 1991 as a division of the Physics Society of the Soviet Union and it became an independent organisation in 1993 set up by the Russian Association of Radiologists, and a number of other organisations. Its objectives are:

- organisation and support of fundamental and applied research in medical physics and engineering,
- introduction of high technology equipment in diagnostic and therapeutic medicine ,
- organisation of educational and training activities,
- development of international contacts and co-operation with foreign researchers and experts, and
- protection of social and professional rights and interests of the members of the Association.

At present the AMPR has more than 300 members (about 40 Full and Associate Professors and 80 PhDs) directly involved in medical physics, representing some 100 leading medical, research and technical institutions in 70 towns in Russia.

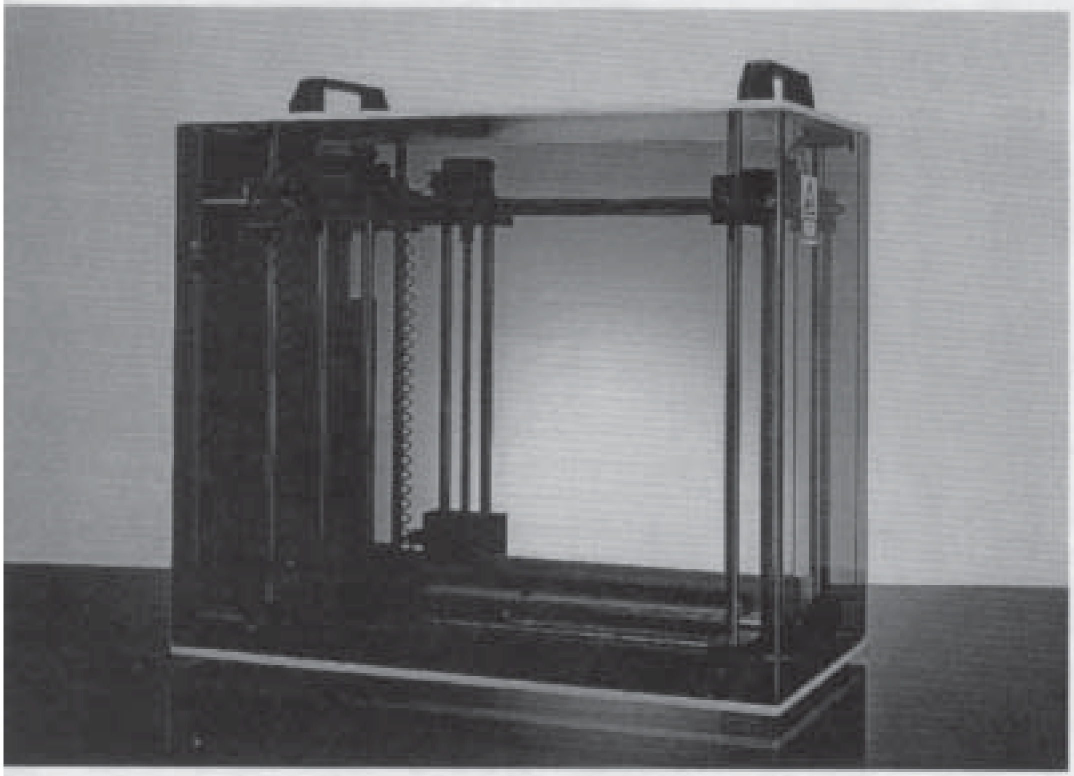
The AMPR is a member of the European Federation of Organisations of Medical Physics,, the International Organisation of Medical Physics, the European Society of Physics and the Union of Scientific Organisations of the Russian Federation.

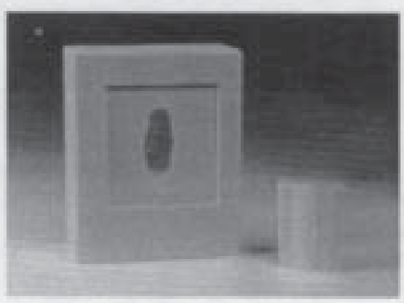
The Congress was held at six lectures halls at Moscow State University and was accompanied by an exhibition with the participation of several domestic and foreign exhibitors. The number of participants from Russia and from the ex-Soviet countries such as Ukraine, Belarus, Georgia, etc. exceeded 300, whereas foreign participants included medical physicists from U.K, USA, Poland, Italy and Greece. Altogether about 482 papers were presented in 18 categories by 1545 authors (see the table). The actual number of authors was much lower since the same authors contributed to several papers.

(continued on page 10)

MultiCut

Block Cutter System





Precision and Consistency for Conformal Therapy

The Multicut Block Cutting System offers the precision and consistency you demand for conformal therapy.

The flexible Windows-based software and advanced new hardware design make Multicut ideal for integration into the clinical routine of your radiotherapy department.

MULTIDATA MULTIDATA SYSTEMS INTERNATIONAL CORP.
9801 Manchester Road • St. Louis MO 63119 • Tel. (314) 968-6880 • Fax (314) 968-6443

It can easily be seen from the table that the largest number of papers were presented in the category of Lasers in Biomedicine = (51), whereas the smallest number of papers were read in Ultrasound in Therapy. What is also of interest is the average number of authors per one paper, which varied from 1.5 to 6.0 (mean: .3.0). These figures represent world's average and show that medical physics and engineering in Russia is a collective effort of hundreds of physicists and engineers.

The abstracts of all the papers were published in four current issues of the journal of Medical Physics (in Russian).

During the Congress the delegates from five post-Soviet countries: Russian Federation, Belarus, Georgia, Uzbekistan and Ukraine formed an Euro-Asian Federation of Organisations of Medical Physicists (see separate communication).

The Congress was well organized and went very smoothly due to the energy and activity of the Organising Committee, especially to the indefatigable Dr Nina Alexandrovna Lutova, Secretary of the AMPR. The foreign guests were able not only to participate in the proceedings, but were also provided with the opportunity of sightseeing in Moscow and to visit a historical site of old Russian monasteries in Zagorsk some 50 miles to the east of Moscow.

The Congress was a great step forward in the direction of developing medical physics and engineering in that part of Europe and Asia, and provided every chance of success for future.

Main Category	No. of papers	No. of authors	No. of authors per paper
Lasers in Biomedicine	51	188	3.7
New Physics Methods, Instruments & Techniques in Medicine	46	138	3.0
Medical Biophysics	43	154	3.6
Physical & Clinical Aspects of Radiotherapy	40	135	3.3
Invited Papers	34	82	2.5
Nuclear Medicine	34	116	3.4
Radiotherapy Planning and Clinical Dosimetry	28	62	2.2
Education in Medical Physics & Engineering	28	47	1.7
NMR & X-ray Tomography	26	77	3.0
Radiodiagnosis	26	64	2.5
Proton & Neutron Radiotherapy	22	134	6.1
Microwave and RF Diagnosis & Therapy	22	72	3.3
Medical Acoustics	21	84	4.0
Mathematical Methods, Computers and Information Science in Medicine	20	68	3.4
Physical & Clinical Aspects of Brachytherapy	16	52	3.2
Magnetic Therapy & Hyperthermia	10	32	3.2
Ultrasound in Diagnosis	10	31	3.1
Ultrasound in Therapy	6	9	1.5

Medical Physics and Biomedical Engineering Education and Traning in Poland

Oskar A. Chomicki[1] *and Marta Wasilewska-Radwanska* [2]   [1]President of IOMP   [2]Faculty of Physics and Nuclear Techniques, University of Mining and Metallurgy, Poland

Polish Medical Physics (not to mention earlier researchers) dates back to the year 1933 when Professor Cezary Pawlowski (1895-1981), a prominent Polish physicist and Maria Sklodowska-Curie's co-worker, after coming from France took the most active part in the implementation of Mme Sklodowska-Curie's idea to set up a Physics Department at the new building of the Radium Institute in Warsaw, which due to its high standard of research, was offered a large sum of money by Irene and Frederic Joliot (Nobel prize winners) to buy a large electromagnet for the Wilson chamber experiments. Professor Pawlowski also founded a Laboratory intended for measurements of X-rays and radioactive materials for the use in various cancer hospitals. At that time teaching was carried out on an individual basis. It was only after the Second World War, in 1946, thanks to professor Pawlowski's efforts a special field of study was started at Warsaw Technical University, in the form of a Medical Electro-Engineering division, where students were taught general radiology, industrial radiology, radiation measurements, radiation protection, etc. His co-workers , Professors J.Keller and S. Nowosielski, continued this work which later developed into regular studies in biomedical engineering carried out presently at the division of Biomedical Engineering, Faculty of Mechatronics, at Warsaw Technical University (Professors G.Pawlicki and T.Pa_ko).

At other places in Poland, notably in Kraków, Professor M. Miesowicz started Technical Physics as early as 1950 at the University of Mining & Metallurgy. In 1990, at the same University, Prof. M.Radwanska-Wasilewska set up a Medical Physics & Dosimetry Section.

Medical physics in Warsaw was started at Warsaw University in 1974 (Prof. B.Gwiazdowska, E.Skrzypczak,J.Tolwinski), and in Kraków at the Jagiellonian University in 1979 (Prof. A. Hrynkiewicz).

It was only almost twenty years later that medical physics was initiated at other Schools of Higher Learning: at the A.Mickiewicz University in Poznan in1995 (Prof.Krzyminiewski), or at the University of Silesia in 1996 (Prof.Drzazga).

Biomedical Engineering has been and is now being taught at various Technical Universities in Warsaw, Bialystok, Gdansk, Koszalin, Kraków, Lódz, Szczecin, Wroclaw and Gliwice .

In 2000 an Intercollegiate Centre for Medical Physics and Biomedical Engineering was initiated by the Polish Society of Medical Physics.

In the academic year 2000/2001 courses in medical physics and biomedical engineering are offered in a large number of universities and technical universities in Poland.

Generally, in the Polish system of so-called tertiary education (Universities, Colleges, Medical Academies, Fine Art. Academies, etc) undergraduate studies are of 3 or 4- year duration and end up with a licentiate's or bachelor's degree. Graduate studies last additional two more years and end up with a master's degree. Finally, postgraduate studies of 3-5 year duration are completed with a doctor's degree. The same applies to medical physics and biomedical engineering. Most educational establishments offer special courses in medical physics and other disciplines leading to Licentiate or Bachelor's degrees on top of three years of basic undergraduate studies in general physics or electronic/electrical engineering. Some schools, however, offer a full 5-year programme of special studies.

To give you a general view of the differences in programmes (curriculae), four establishments have been chosen: Warsaw University (UW); Warsaw Technical University (WTU), University of Pozna_ (UP) and University of Mining & Metallurgy in Kraków (UMM) (Tables 1 and 2).

From tables 1 and 2 it can easily be seen that there is a large amount of variety as to the subjects included in the respective curricula. The only common ground seems to cover subjects such as *cell biology & physiology of human body, medical diagnosis, radiotherapy & radiation protection etc, statistics & signal analysis, or computers.* Each of the educational establishments has its own set of subjects depending on their

(continued on page 12)

(Continued from page 10)

Table 1

	WU	WTU	UP	UMM
SEMESTERS VII – X				
Leading to Master of Science Degree **Total number of hours**				
Cell biology & physiology of human body	30	90	30	45
Medical diagnosis, etc	60	60	90	
Radiotherapy & radiation protection	45	60	30	30
Statistics & signal analysis, Computers	120	120	60	135
Modelling of biological processes	60	60		
Bioelectrical phenomena	60			
Biochemistry	30			
Laboratory of medical physics	150			

Table 2

	UW	WTU	PU	UMM
SEMESTERS VII – X				
Leading to Master of Science Degree **Total number of hours**				
Biomedical engineering		180		
Biomechanics		90		
X-ray equipment		300		
Imaging methods		90		
Molecular biophysics			30	
Computer tomography & NMR,lasers			30	
Radiation Biology				30
Nuclear Medicine				15
Detectors for nuclear medicine				135

tradition and specific interests. Especially greater differences are seen between the curricula of Universities and Technical Universities. Therefore, two examples will be discussed later in detail: one concerning medical physics taught at Warsaw University, and the other referring to biomedical engineering taught at Warsaw Technical University.

Medical physics education and training at Warsaw University was started in 1974 with the impetus from the IAEA / WHO Seminar in 1972 in Koeln (Germany). The Polish programme was a result of many discussions by specialists both from Poland and the United Kingdom (Prof. J.Boag), which was carried out under the auspices of the Committee of Medical Physics, Polish Academy of Sciences. It was soon realised that medical physics should be taught at a University rather than at a Technical University since the majority of candidates would be recruited from physics graduates.

Warsaw University has had a long tradition of physics education and research of very high standard. Medical physics education at this place is carried out at the Institute of Physics and takes the form of a 2-2.5-yr special course on top of a 3-yr course in general physics.

As for the teaching staff, they come from various institutions such as Physics Department at Warsaw University, Physics Department of the M.Sk_odowska-Curie Memorial Cancer Centre, the Institute of Basic Problems in Technology of the Polish Academy of Sciences, Centre for Postgraduate Medical Education and the Central Laboratory for Radiological Protection.

The main fields of research in medical physics at Warsaw University (as of the year 2001) were, among other things, as follows:

1. Spontaneous and event-related brain electrical activity,
2. Modelling of the synchronised activity of neural populations,
3. Automatic detection and elimination of biological artefacts,
4. Mechanisms of generation and propagation of epileptic seizures,
5. Localisation of epileptic foci, and
6. Various problems in radiotherapy planning, etc

It is clear that the Medical Physics Division of the Faculty of Physics at Warsaw University carries out work focussed on bio-electrical problems and/or those concerned with signal analysis.

The final problem in the education and training in medical physics is that of the analysis of the establishments where graduates can find work. It seems that over the past 30 years the situation in this respect can be roughly summarised in Table 4.

Table 3

SUBJECT	Lectures (hours)	Classes (hours)	Experiments (hours)
Fundamentals of cell biology and physiology of higher organisms	30		
Bioelectricity and biocybernetics	60		
Physical fundamentals of diagnostic methods In medicine	30	30	15
Physical principles of radiotherapy and radiation protection	30	15	
Statistics and signal analysis	60	60	
Biochemistry	30		
Radiation dosimetry and radioecology	15	10	
Modelling of processes in biology and medicine	30	30	
Medical physics laboratory			150
Seminar		120	
Master of Science Thesis			One full year

Table 4

Establishment	% of total
Medical Physics Departments of Universities	15
Oncology Centres	20
Hospitals and other Medical & Biological Institutions	20
Schools of Higher Learning	20
Secondary schools	15
Radiological Protection Centres	10

Before discussing biomedical engineering programmes, as exemplified by the curricula taught at Warsaw Technical University (Table 5 and 6) it may be worth while to quote a definition of biomedical engineering as provided by the International Federation of Medical and Biological Engineering: “Medical and Biological Engineering integrates physical, mathematical and life sciences with engineering principles for the study of biology, medicine and health systems and for the application of technology to improving health and quality of life. It creates knowledge from the molecular to organ system levels, develops materials, devices, systems, information approaches, technology management and methods for assessment and evaluation of technology or the prevention, diagnosis and treatment of disease, health care delivery, and for patient care and rehabilitation” (IFMBE)

Table 5

Subject	Lectures (hours)	Classes (hours)
Radiology	60	
Cell biology	60	
Structure of the human body	15	15
Elements of biophysics	60	
Introduction to medicine	60	
Physical and medical fundamentals of biomedical engineering	120	60
Medical information science	60	60
Biomechanics	60	30
X-ray devices and equipment	90	120
Biomedical equipment	150	150
Imaging methods	60	30

(continued on page 13)

(Continued from page 12)

Table 6

Subjects	Total number of hours	Total number of hours
Optional subjects - group I		
Circuits in medical electronics		
Mechanical systems of		
medical devices	60	30
Optional subjects - group II Intensive care instrumentation Equipment for haemodynamic measurements Diagnostic laboratory equipment		
Rehabilitation engineering	60	60
Optional subjects ? group III Artificial organs Ultrasonic technologies in medicine Biomedical optics Devices and systems for sterilisation	60	30
Master of Science Thesis	Full year	

Tables 5 and 6 clearly show that the subjects taught at a Technical University considerably differ from those taught at Universities in that they represent a more technological approach in various fields, eg. artificial organs or biomedical equipment.

Conclusions

- Medical Physics & Biomedical Engineering has had an almost 30-year tradition in Poland.
- Medical Physics is being taught at a large number of Universities and Biomedical Engineering is taught at some Technical Universities.
- The number of graduates with a M.Sc. degree is over 50 annually.
- Most graduates find jobs in various medical and educational establishments.
- The certification and recognition programmes of the profession of a medical physicist are under consideration.

*) This paper was presented at the First Euroasian Congress on Medical Physics and Engineering , "Medical Physics-2001", 18-22 June 2001 in Moscow (Russian Federation)

THE STATE OF MEDICAL PHYSICS IN SUDAN – *Omer A. Ali, Ph.D.*

Medical physics in Sudan was started in 1967. In the same year radiation therapy and diagnostic service started in Sudan. At that time, there were only three physicists in the country and they had received their basic training in medical physics in the U.K. Since then the number of the medical physicists had started to increase gradually. Unfortunately, it is difficult to keep them in practice due to the low salaries. This reason led them to flee overseas or they held teaching positions at the universities within the country. Those who went to universities introduced medical physics courses at their facilities. This motivated the newcomers to the field to be aware of medical physics before they joined the practice. It is worthy to mention that there was only one radiation facility in the whole country until 1999, namely Radiation and Isotopes Centre – Khartoum (RICK). Another facility was established 180 km from the former, and it is affiliated with the University Of Gazera. This facility was established in 1999.

From 1967 to the present, there are approximately 24 people practicing medical physics. Only eight are rendering service in the two centres. Five of them attained an MS degree in Medical Physics or Biophysics, as well as training from recognized universities and centres abroad. The other three are still busy with their internship training at home.

In Sudan there is no professional board or council to certify the physicist to practice medical physics. To join the profession, the students must have a BS degree in physics. The trainees work under supervision for a period of one year. The performances of the trainees during this period are assessed carefully. The candidate's application is either rejected or accepted to fill the post or the vacancy. A successful candidate works at least one more year and then applies for an IAEA fellowship. During this period, the trainee takes a self-study course in different disciplines of medical physics. The trainee then discusses the problems and difficulties encountered during their readings with their supervisors.

Sudan joined IOMP in the early 1990's. Due to the high inflation rate and country's economic instability, the members of Sudanese Medical Physics Association (SMPA), could not keep up with their dues and hence, the association was unable to pay dues for organizational membership. This led to the breakdown of activities locally and a halt in flow of information between IOMP and SMPA. Moreover, the persisting economical crises has caused the physicists to be isolated from the breakthrough information and knowledge in medical physics, as they are unable to pay for their annual subscriptions to different journals and articles of medical physics.

To uplift and improve this situation, Donations of any kind, equipment, QC kits, etc. will be greatly helpful. Donation of journals will improve our libraries. Establishment of links between our institutes and any department interested in such relationship for the exchange of knowledge and expertise will help us to remain current in the field.

International Scientific Exchange Programs
The Physics of Radiation Therapy
Radiation and Isotopes Center Khartoum (RICK)
Khartoum- Sudan
December 14-18, 2002

Sponsoring Organizations: American Association of Physicists in Medicine, International Organization of Medical Physics Corporate Sponsors ($1,000 and up), Supporters ($500 - $999), Contributors ($100 - $499), Donors (< $100)

Contributions should be made payable to: AAPM International Scientific Exchange **Programs and be send to:**
Mr. Sal Trofi, Executive Director
AAPM Headquarters Office
One Physics Ellipse
College Park, MD 20740-3846 USA
Corporate Sponsors, Supporters, Contributors and Donors will be acknowledged in publications of AAPM and IOMP.

For more information contact:
Azam Niroomand-Rad, Ph.D.
Georgetown University Medical Center
Department of Radiation Medicine
L.L. Bles Building
3800 Reservoir Road, N.W.
Washington D.C. 20007 USA
Tel: 202 - 784 - 3320
Fax: 202 - 784 - 3323
Email: nirooma@gunet.georgetown.edu

Muthana Al-Ghazi, Ph.D.
Department of Radiation Oncology
University of California, Irvine
101 The City Drive South
Orange, CA 92868 USA
Tel: 714 – 456 - 8074
Fax: 714 – 456 - 7170
Email: malghazi@uci.edu

Report on the 1st Asia-Oceania Congress of Medical Physics...*(continued from page 8)*

with other major international scientific meetings. This suggested that the medical physicists in the AFOMP region might be less enthusiastic and more passive in making abstract submission to the scientific meeting. AFOMP and its member organizations should identify and review the reasons for the low free paper submission rate from their members and take appropriate improvement measures for future meetings.

The Symposium on Medical Physics Training in Asia: The symposium was one of the key events of the congress and was very well attended. The theme of the symposium was on a very important aspect of the development of medical physics in the region. Nine speakers from Australia, China, IAEA, India, Japan, Korea, Malaysia, and Thailand gave their reports on the current status and future plan on medical physics training and training needs in their countries or organizations. The presentations were followed by an open discussion session, which facilitated the participants to give their comments and opinions on medical physics training and education, particularly on how such issues might best be handled with mutual support and collaboration. During the discussion session, some members of the panel and audience expressed their concerns that the development of medical physics in the region was not in proportion with the rapid advances in the field of radiology and radiation oncology. The lack of resources and expertise were the most common problems they were facing. Some speakers indicated that the problems were more serious in some AFOMP countries and that one of the possible reasons for this was that the medical physics profession was still not fully recognized. As a result, the needs for physicists and their training and physics facilities would not always be given a high priority by the administrations or government agencies in their consideration for resources allocation. Some speakers expressed their strong expectations from the parts of AFOMP, IOMP, and IAEA in improving the professional status of the medical physicists, particularly those in the AFOMP region.

The Outcome: The congress has achieved the following objectives:(a) providing a platform for AFOMP physicists to exchange their ideas and experience with each other and with those from other parts of the world, (b) promoting the development of medical physics in the region, (c) promoting the friendship and collaboration between the medical physicists themselves and between the physics community and the industry, and (d) laying the foundation for more and closer collaboration between AFOMP and its member organizations. The event has proved its value to AFOMP physicists and justified the need and effort for an annual event.

Calendar of Events

Carter Schroy, Ph.D., Associate Editor

The following events have been excerpted from the Medical Physics Calendar [http://medphys.org/calendar/]. Also see [http://www.iomp.org/]. Events for inclusion should be emailed to the Calendar Editor, Carter Schroy, at EventsEd@aol.com. MPW deadlines are April 1 and October 1 for issues that are mailed several weeks later.

8-11 September 2002
Annual Meeting of the German, Austrian and Swiss Organisation of Medical Physics; Gmunden, Austria
http://www.fmi.uni-passau.de/mpp/

8-13 September 2002
10th International Symposium on Neutron Capture Therapy; Essen, Germany
w.sauerwein@UNI-ESSEN.DE |
http://www.jrc.nl/isnct/nct2002.html

17-21 September 2002
21st Annual ESTRO Meeting; Praha, Czech Republic
http://www.estro.be/estro/Frames/events.html |
info@estro.be

30 September - 3 October 2002
8th Annual BEAM Workshop; Ottawa, Canada
http://www.irs.inms.nrc.ca/inms/irs/BEAM/beamhome.html | bwalters@irs.phy.nrc.ca

10-14 November 2002
Engineering and Physical Sciences in Medicine (EPSM 2002); Rotorua, New Zealand
http://www.epsm2002.com | IslaN@adhb.govt.nz

11-16 November 2002
IEEE Nuclear Science Symposium and Medical Imaging Conference; Norfolk, USA
http://www.-mic.org | karp@rad.upenn.edu

15-17 November 2002
The 23rd Annual Conference of the Association of Medical Physicists of India; Jaipur, India
http://www.geocities.commpind/ |
drarunchougule@yahoo.com

25–28 November 2002
IAEA Int'l Symposium on Standards and Codes of Practice in Medical Radiation Dosimetry; Vienna, Austria
http://www.iaea.org/worldatom/Meetings/ |
dosimetry@iaea.org

1-6 December 2002
Radiological Society of North America Annual Meeting, Chicago, USA | http://www.rsna.org

10-16 May 2003
International Society for Magnetic Resonance in Medicine Scientific Meeting and Exhibition; Toronto, Canada
info@smr.org | http://www.ismrm.org

20-23 May 2003
8th European Congress on Medical Physics and Engineering; Eindhoven, The Netherlands
http://www.efomp2003.nl | m.c.groenendijk@tue.nl

1-6 June 2003
World Federation for Ultrasound in Medicine and Biology; Montreal, Canada
http://www.wfumb.org.au/congress.htm

20-25 July 2003
18th Int'l Conference on Information Processing in Medical Imaging; Ambleside, UK
http://www.ipmi-conference.com | noble@robots.ox.ac.uk

17-22 August 2003
12th Int'l Congress of Radiation Research (ICRR 2003); Brisbane, Australia
http://www.icrr2003.org | icrr2003@icms.com.au

19-21 August 2003
Workshop on Recent Advances in Absorbed Dose Standards (ARPANSA); Melbourne, Australia | http://www.arpansa.gov.au | robert.huntley@health.gov.au

24-29 August 2003
** WORLD CONGRESS ON MEDICAL PHYSICS and BIOMEDICAL ENGINEERING ** ; Sydney, Australia
http://www.wc2003.org/WC2003 | B.Allen@unsw.edu.au

19-24 October 2003
IEEE Nuclear Science Symposium and Medical Imaging Conference; Portland, OR USA
http://www.-mic.org | rjames@bnl.gov

INTERNATIONAL ORGANIZATION FOR MEDICAL PHYSICS CORPORATE AFFILIATES, 2002

SAINT-GOBAIN CRYSTALS & DETECTORS (Formerly Bicron)
RMP. 6801 Cochran Rd.
Solon, OH 44139 USA
Contact: Richard P. Oxford
Tel: 440-542-5940 / Fax: 440-349-6581
e-mail: Richard.P.Oxford@Saint-Gobain.com
Web: www.dectectors.saint-goblain.com

CAPINTEC, INC.
6 Arrow Road
Ramsey, NJ 07446 USA
Contact: Jessica Bede
Tel: 201-825-9500 / Fax: 201-825-1336
e-mail: jbede@capintec.com
Web: www.capintec.com

LANDAUR, INC.
2 Science Road
Glenwood, IL 60425 USA
Contact: R. Craig Yoder, Ph.D.
Tel: 7708-755-7000 / Fax: 708-755-7011
e-mail: cyoder@landauerinc.com
Web: www.landauerinc.com

MDS NORDION-THERATRONICS INTERNATIONAL, LTD.
413 March Road, P.O. Box 13140
Kanata, Ontario K2K 2B7 CANADA
Cotact: Mr. Ronald E. Dunfield
Tel: +1-613-591-2100 / Fax: +1-613-592-3816
e-mail: marketing@mds.nordion.com

Donation of Used Equipment – PRC report for January-June 2002.

Mohammad K. Zaidi, Ph.D.

Radiation Field Analyzer, MP2, 2-D and PTW has been donated by Radio-Onkologie, Kantonsspital Chur, Switzerland to the Department of Radiotherapy, Asia Hospital, University of Medical Sciences, Tehran, Iran. Thanks to the efforts of physicist Florica Ionescu and the hospital for the donation and packing which made this shipment possible. (She also supplied connecting cables to meet the hospital needs. I am also thankful to the hospital for the donation and free packing.)

A treatment planning system will be shipped to Nile Badrawi Medical School, Cairo, Egypt. The equipment being donated by Reid Hospital, Richmond, Indiana.

Equipment available: Two Mevatron, Co-60 machine (2 Theratronic and a Picker C-9).

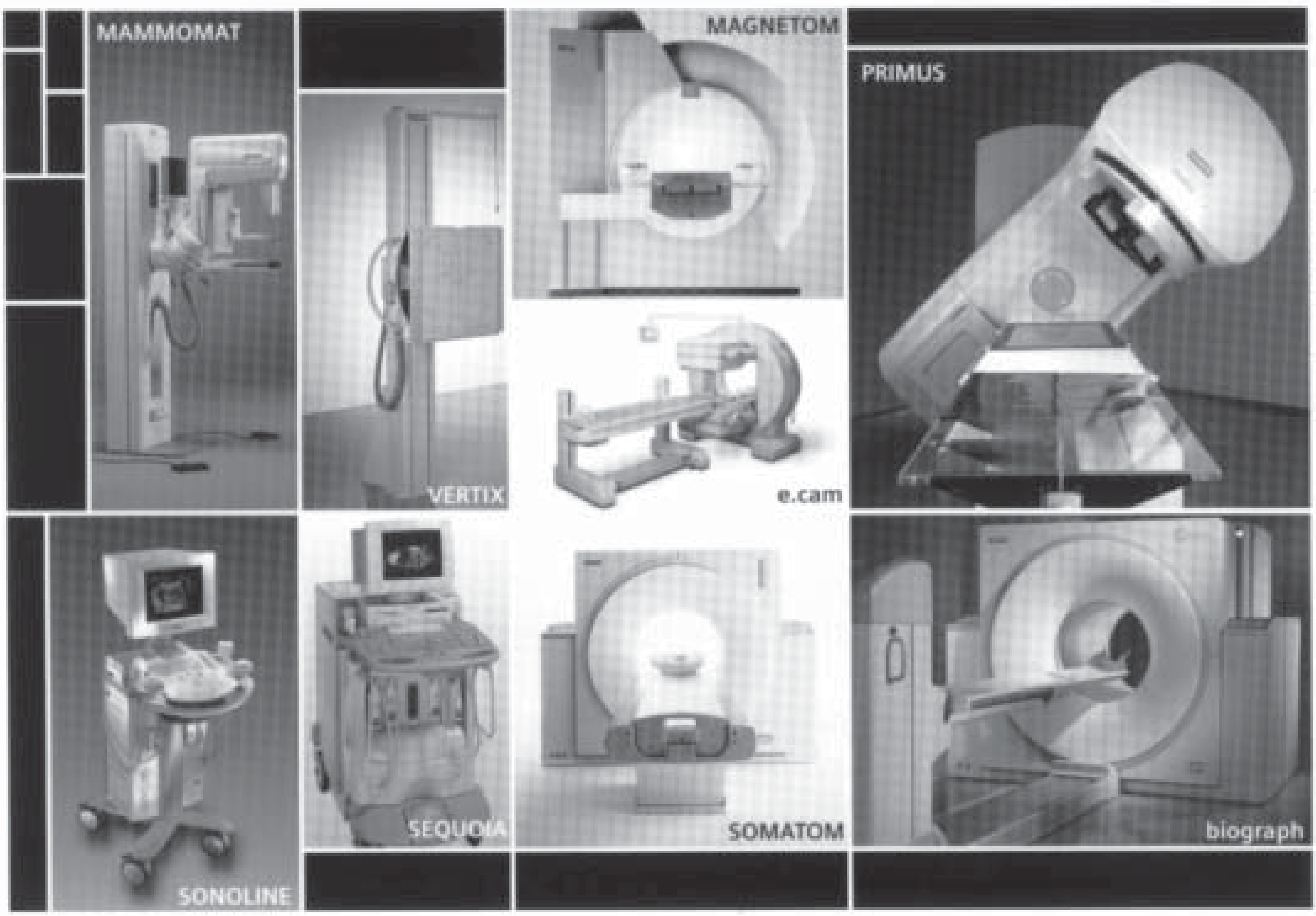
Equipment needed: Block cutter, film densitometer, radiation field analyzer, direct patient dose monitor, rectal monitor, cavity chamber, TLD readers, ultrasound system with sectorial transducer, surgical aspiration system, gastroscope, cardiotocograph and micro-analyzer for blood, urine and biochemistry analysis.

Joint-venture proposal from India: "We need support from IOMP to develop a Radiation oncology centre in India, even if there is any institution or individual who would be interested to donate equipment we can tie up with such institution/ individual and give them their name e.g. Indo-US joint venture." They need a used cobalt 60, mammography unit and a gamma camera.

The equipment available is in good working condition. The recipient has to pay for shipping and handling only. If you want to donate used equipment to IOMP or want some equipment donate to your organization, please contact Mohammed K. Zaidi at 208-526-2132, Fax 208-526-2548 or e.mail zaidimk@id.doe.gov

SIEMENS

SiemensMedical.com/oncology



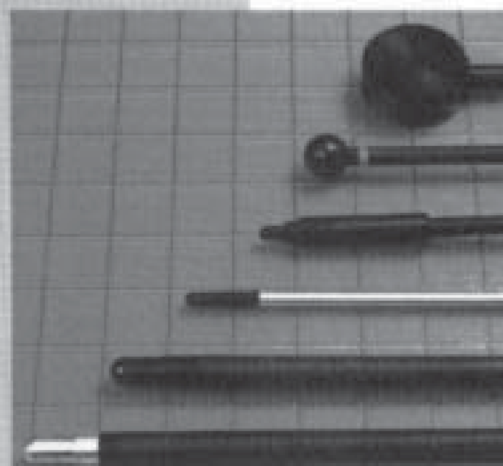
Oncology Care Systems • 4040 Nelson Avenue, Concord, CA 94520 • (925) 246-8200

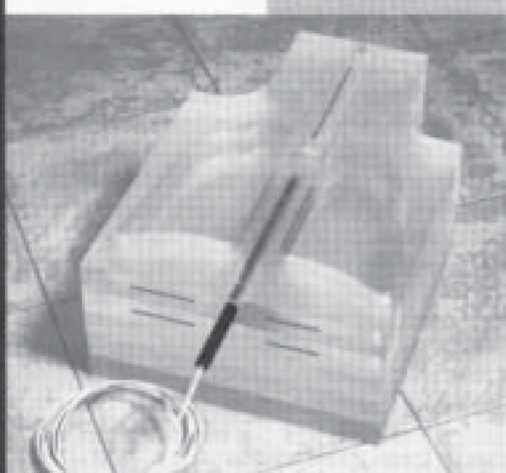
SEEK-FIND-ACT-FOLLOW - the Continuum of Oncology Care™

Siemens oncology portfolio comprises comprehensive workflow solutions integrating the full spectrum of care from screening/early detection and diagnosis through therapy and follow-up. All from one provider — with over 100 years history of innovation in medical technology.

Siemens proven clinical methods can help you to achieve more successful outcomes. How? Through industry-leading technology, increased productivity measures for maximized utilization potential, and patient-friendly design and features.

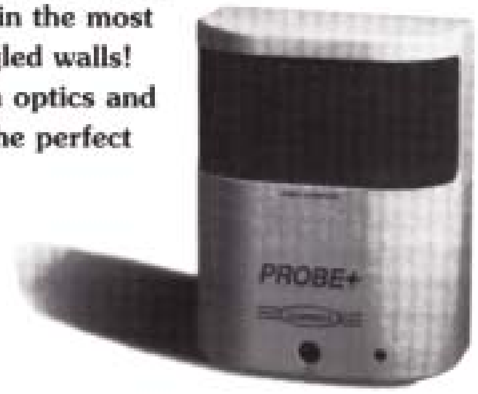
Every day in the United States alone, 29,000 cancer patients receive radiation therapy delivered by Siemens linear accelerators. As clinical protocols transition to include IMRT and IGRT, Siemens seamlessly integrates the diagnostic and treatment modalities. That's what we call **Best Practice Oncology Care**.

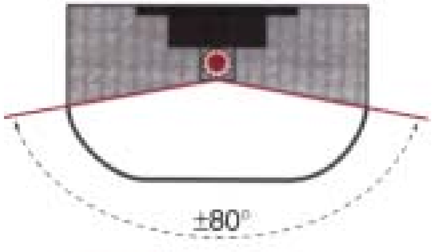




Our newest Diode Laser is right on target!

We would like to introduce you to the world's most versatile Patient Alignment Diode Laser - the *PROBE+*. Our new design makes installation faster and fine focus adjustments easier than ever. The new wide-view turret profile allows you the flexibility to mount it in the most challenging room layouts - especially on angled walls! These features, combined with our precision optics and variable light intensity, make the *PROBE+* the perfect solution to meet all your clinical needs.





The PROBE+ Diode Laser can be adjusted a full 160° to accommodate the most challenging room installations.

For more information about Gammex Lasers call our sales professionals today at 1-800-GAMMEX 1
e-mail us at sales@gammex.com
or visit our web page at www.gammex.com

Gammex

GAMMEX RMI®

GAMMEX RMI
P.O. Box 620327
Middleton, WI 53562-0327 USA
1-800-GAMMEX-1 (426-6391)
1-608-828-7000
Fax: 1-608-828-7500
e-mail: sales@gammex.com

INNOVATIONS *in Laser Alignment*