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**MEDICAL PHYSICS WORLD**

Bulletin of the International Organization for Medical Physics

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**President's Message** — *Azam Niroomand-Rad, PhD, President IOMP*

*Azam Niroomand-Rad,  
President of IOMP*

Dear Fellow Members of IOMP,

One of the major topics that I addressed in my first President's Message (MPW, Vol. 19, No. 2, 2003) was to ask members, who wanted to become more involved in IOMP affairs, to communicate with us and get involved with the tasks at hand. I would like to thank

those who responded and have already got involved with our activities as outlined here:

- Members of the committees (Science, Education & Training, Professional Relation, Publication, Honors and Awards, Rule, and Finance) except for Nominating Committee have been finalized and approved by EXCOM. We are seeking 3 members, one each from Africa, Asia, and Latin America to serve as member of Nominating Committee for 2006 election. If interested, please contact me.
- EXCOM has asked the newly established Rule Committee to provide guidelines to membership for the following items:
  - (a) Term for Chair and Members of Committee
  - (b) Criteria for committee membership
  - (c) Guidelines for Post WC Travel Grant, in conjunction with PRC
  - (d) Rules for Acceptance of Proxy Votes at future WC

**If interested, or if there are other items that need to be considered by Rule Committee, please send your ideas and thoughts to Prof. Fridtjof Nusslen from Germany.**

- Dr. Allen Wilkinson from USA is now serving as the new Curator for the International Library Programs. Please send your annual reports along with your request for books / journals and other educational materials directly to him.
- Dr. Mehrdad Sarfaraz from USA, a member of Finance Committee, is now serving as our *first* Corporate Liaison Officer. His major role is to establish close ties with

vendors and private entities in order to attract more Corporate Members and to solicitate more funding and grants for our various educational and professional activities. With this initiative, we hope to strengthen IOMP financial state that has been declining in the past few years.

I would also like to report to you that a few months ago, International Union for Pure and Applied Physics (IUPAP) has approached us (IOMP) as well as IUPESM for establishing a closer relationship with them. A six-person working group: 3 IOMP/IUPESM members (Profs. Barry Allen, Azam Niroomand-Rad, and Colin Orton) and 3 IUPAP members (Drs Rachad Shoucri, Denis Le Bihan and Pal Ormos), Chaired by Prof. Pal Ormos, was formed to examine various possibilities for establishing a formal relation between medical physicists and other pure and applied physicists worldwide. We concluded that formation of an Affiliated Commission is the preferred first step in integrating IOMP/IUPESM into IUPAP. We plan to present our proposal for collaboration at the next IUPAP Council Meeting. If interested on this issue, please send your thoughts and concerns to me.

*(continued on page 2)*

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## President's Message *(continued from page 1)*

For your information, UNESCO (United Nations Educational, Scientific and Cultural Organization) has declared the year 2005 to be World Year of Physics. It will commemorate the 100<sup>th</sup> anniversary of Einstein's "Miraculous Year", the year that he published his three most famous papers, each opening up a new field of physics. As part of the celebration of the World Year of Physics, UNESCO, ICTP (International Center for Theoretical Physics, Trieste, Italy), IUPAP, and the SAIP (South African Institute of Physics) are joining together to sponsor the World Conference on Physics and Sustainable Development, which will be held in Durban, South Africa, on October 31-November 2, 2005. This conference will review the contributions that physics has made to society in the past and formulate a plan for the contributions that it can and should make in future. In part, it will be a follow up to the broader United Nations World Summit on Sustainable Development that was held in Johannesburg in the summer of 2002 and to the ten reports that ICSU developed in preparation for the Summit. However, none of these reports focused on the contributions of the hard sciences, and in particular physics.

Physics has contributed greatly to the health and economic well being of people around the world. However, the contributions have not led to equal progress in all parts of the world. It is the intent of the conference organizers to place particular emphasis on how physics can do more to help progress in the developing world. We hope to have a large participation from physicists in Africa, Asia, Latin America and the Middle East as well as from the developed world. Four themes have been chosen for the conference: Physics and Economic Development, Physics and Health, Energy and the

Environment, and Physics Education. For each of these, major preparation will take place before the conference. There will be a Planning Committee for each topic that will outline the problems, write white papers proposing contributions that physics can make, and propose follow up actions for the physics community. Several international conferences scheduled for 2004 on these topics will serve as preparatory meetings for the 2005 conference. The 2005 conference will be the first time that the international physics community focuses its attention collectively on these themes and the interplay between them. We hope to get involved with this conference through our affiliation with IUPAP. We expect this conference to lead to important action items and that organizations of physicists, including all of the national physical societies, will join hands to implement them collectively.

Last but not the least, I am happy to inform you that IOMP Headquarter has successfully moved to UK under leadership of our Secretary General, Dr. Peter Smith. Moreover, we are now examining several options for having a "permanent" Headquarters-independent of the Secretary General's Office- with a "permanent" hired staff/secretary. There is a good possibility for combing our resources with IUPESM and IFMBE in having a suitable permanent office for all 3 organizations. As expected this may be a costly proposition that requires some initial investment. However, we believe that in the long term, the return on this investment will benefit us all and will enable our Organization to grow.

As always, the IOMP Officers and Chairs will be available to the members for correspondence on any issues as we all work together to improve our Organization.

Officers and Council of IOMP - 2004

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Event information should be addressed to

**Dr. Carter Schroy.**

## The Second Southeast Asian Congress of Medical Physics (SEACOMP)



SEAFOMP founding members posing with plenary speaker

**"ENHANCING QUALITY IN IMAGING AND THERAPY IN SOUTH-EAST ASIA" – 12-14 November 2003 Bangkok, Thailand**



Southeast Asian Federation of Organizations of Medical Physics (SEAFOMP) successfully organized the Second Southeast Asian Congress of Medical Physics (SEACOMP) with the Thai Medical Physicists Society and the Faculty of Medicine, Chulalongkorn University. We are very fortunate to have the International Organization for Medical Physics (IOMP) and the Institute of Physics and Engineering in Medicine (IPEM) to co-sponsor our meeting. We also received the endorsement and support from the Asia-Oceania Federation of Organizations for Medical Physics (AFOMP) and European Federation of Organisations in Medical Physics (EFOMP). The IPEM sponsored travel grant for two eminent speakers, namely Dr. Paul Shrimpton from the NRPB and Dr. J.A. Evans from the University of Leeds.

## Gold medal of Sociedad Española de Física Médica (SEFM) to Cari Borrás

In October 2002 the Board of SEFM decided to grant to Cari Borrás Ph.D. the maximum recognition for her invaluable scientific and professional contribution in the medical physics field as radiological physicist, especially in American countries and also in Spain. The gold medal of SEFM was awarded in recognition of her services. The ceremony took place in June 2003 in the official opening of the XIV Congress of SEFM, held in Vigo (Spain). In this act a godmother, chosen by Cari, reported a summary of her professional life from when she was a schoolgirl, up to the last job at the Pan American Health Organization / World Health Organization in Washington, (PAHO) in year 2003. She was dedicated to several areas (services, research and teaching).

Her 70 publications and more than 45 nominations in scientific Committees reflect her capacity. Her personal dedication, professionalism and sincerity form part of her manner of understanding life; all of which she emitted in her work. Congratulations and we hope to enjoy your experience and sincere friendship

Sociedad Española de Física Médica.  
November 2003



The theme of the congress is "ENHANCING QUALITY IN

IMAGING AND THERAPY IN SOUTH-EAST ASIA". The congress comprises of 2 Plenary Lectures, 2 Keynote Lectures, 2 Refresher Courses, 14 Invited talks, 7 proffered papers and 3 Posters. A new feature of the congress is the 7 QA workshops on Computed Tomography, Stereotactic Radiosurgery, Ultrasonography, Single Photon Emission Computed Tomography, IMRT, Mammography and Brachytherapy. These workshops encompass hands-on and demonstration sessions.

The two plenary lectures delivered are: "Status of Medical Physicist in Thailand" by Professor Dr.M. Poshychinda and "Patient Protection for Diagnostic Radiology in the 21<sup>st</sup> Century" by Dr. Paul Shrimpton. The other invited speakers include J.A. Evans, Ahmad Shariff Hambali, Peter Homolka, Anchali Krisanachinda, Louis Lee, Franco Milano, R.M. Millar, Kwan-Hoong Ng, Agnette Paralta, Frantisek Pernicka, Madan Rehani, Djarwani Soejoko, HB Wang, Shuji Yamamoto.

About 200 participants attended the congress, representing some 15 countries: Australia, Austria, Czech Republic, Hong Kong China, India, Indonesia, Italy, Japan, Malaysia, Nepal, Philippines, Singapore, Thailand, United Kingdom, and USA. The congress attracted multi-disciplinary participation from medical physicists, radiographers, radiologists, radiation oncologists, biomedical engineers, equipment vendors, technicians, students, administrators, and regulators.

Since her official founding in 2000 SEAFOMP has grown in strength and stature. Medical physics is experiencing rapid growth and we have witnessed the deployment of PET, IMRT, digital radiology, functional MRI, PACS, and teleradiology in Southeast Asia. In order to utilize these modalities optimally and safely we need to keep abreast and be educated. SEAFOMP plans to start an ASEAN College of Medical Physics to further enhance the education and training needs in the region. We are happy to declare that this congress has achieved its objectives.

Anchali Krisanachinda (Organizing Chairperson) and Kwan-Hoong Ng (SEAFOMP President)



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## Secretary General's Report –

Peter H S Smith BA, Ph.D.

The 'Atoms for Peace' speech fifty years ago at the United Nations by the US President Dwight Eisenhower in December 1953, at the height of the cold war, led directly to the formation of the International Atomic Energy Agency (IAEA) a few years later. Whilst major issues still exist in terms of nuclear proliferation, one positive area where the vision has undoubtedly been realised, due to the major contribution of medical physicists, has been the use of radio-nuclides in medicine. Advances are still being made in both therapy and diagnosis but a major challenge, as with many other procedures in which medical physicists are involved, is to ensure availability of nuclear medicine procedures to more than a small fraction of the world's population. IOMP has a role in assisting in this positive type of 'proliferation' and co-operates with other bodies, such as the IAEA. The International Advisory Board has a key role to play and we are delighted that Dr. Ken Shortt and Prof. M.M. Rehani from the IAEA and Dr Harald Ostensen from the World Health Organisation have agreed to be members of the IAB and their advice will be invaluable in helping IOMP consider some of these issues.

Turning to the internal affairs of the IOMP, the Executive committee (ExCom) have decided to have formal virtual meetings twice a year and the first of these was held in December. A summary of the minutes is available on the IOMP website (www.iomp.org). Some of the topics discussed included:

- Approval of membership of Committees 2003-2006  
See website for full list.
- Approval of Budget for 2004 (appendix to summary of minutes).
- Agreement to the establishment of a joint working group with IUPESM to examine various possibilities for establishing a formal relationship between IOMP and the International Union of Pure and Applied Physics (IUPAP). The group is chaired by Prof. Pal Ormos.

The office of IOMP formally transferred to York, UK, headquarters of the UK Institute of Physics and Engineering in Medicine (IPEM) on January 1<sup>st</sup>, and a three year agreement has been signed with IPEM. The lead person at York will be Mr. Ian Wolstencroft, a fully qualified accountant who provide similar support to the European Federation of Organisations for Medical Physics.

Looking forward, 2005 has been designated the 'The World Year of Physics' (WYP2005) by IUPAP (see above) and this designation was supported by the 32<sup>nd</sup> session of UNESCO last November. 2005 is, of course, the centenary of the publication of Albert Einstein's three most far-reaching papers that changed scientific thinking and 'Einstein's Year' will be a celebration of physics. What is the most appropriate way for IOMP to participate? - ideas and information about how individual national organisation or Chapters of IOMP are responding would be welcome.

During 2005 there will be a joint International Conference of Medical Physics, to be held at Nuernberg, Germany from September 14-17. This meeting will be the 14<sup>th</sup> IOMP International Conference of Medical, the 9<sup>th</sup> European Congress of Medical Physics of the European Federation of Organisations for Medical Physics (EFOMP) and the 36<sup>th</sup> Annual meeting of the Deutsche Gesellschaft für Medizinische Physik (DGMP), with the later acting as hosts. No doubt the conference will recognise in a suitable way WYP2005 as well as being the outstanding international medical physics meeting of the year.

ExCom will be issuing a discussion document, at about the same time at this issue is published, on future IOMP international conferences of medical physics. The ExCom would welcome comments when it is issued and will take these into account in revising the document and holding a formal ballot.

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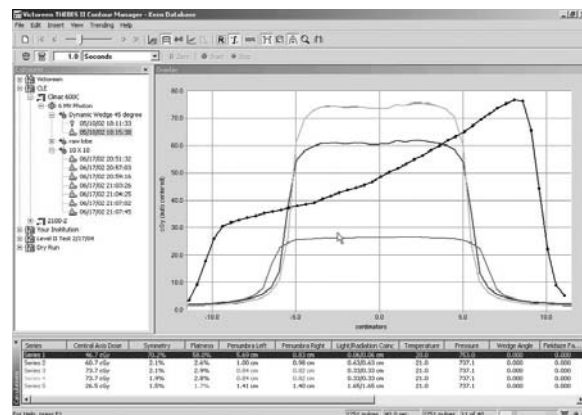
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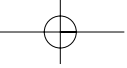
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Carter Schroy, Ph.D., MPW Associate Editor

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## Medical Physics Congress Announcement:

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Prof. Sun I. Kim, the president of WC 2006 Organizing Committee, has been appointed as Director General of the KOSEF(Korea Science and Engineering Foundation).

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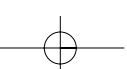
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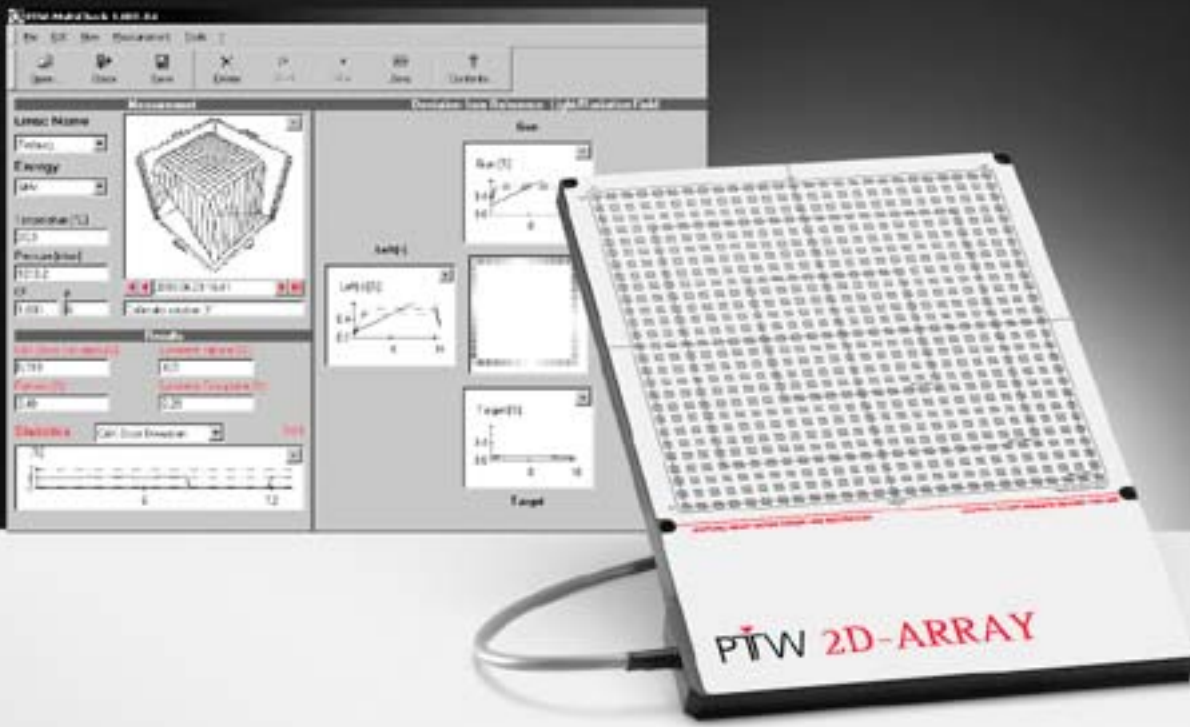
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## EDITOR'S CORNER—

E. Ishmael Parsai, Ph.D., Editor, MPW

This column has recently been added to provide an update on new information source and related news topics in the fields of Medical and Health physics. Often we list reference to review articles, useful websites, and summaries of current innovative advances in the field. Any suggestion from the readers to enhance this column is welcomed. Also, if you have ideas or issues that you believe should be brought to the attention of the MPW readers, please send them to the MPW editor, Dr. Parsai, at: [eparsai@mco.edu](mailto:eparsai@mco.edu).

### ➤ IMCLONE'S CETUXIMAB APPROVED FOR TREATING ADVANCED COLON CANCER

The FDA recently approved the sale of cetuximab (Erbix) to treat patients with metastatic colon cancer, according to the Feb. 13 Washington Post.

The drug was cleared for use alone or in combination with another approved chemotherapy drug. In clinical trials of combination therapy, cetuximab shrank tumors in 23% of advanced colon cancer patients.

Trials are underway to see if the drug can prolong the lives of colon cancer patients. The drug, part of the "targeted therapy" class of cancer treatments, works by targeting those molecules that cause cancer cells to grow.

However, the newly-approved cetuximab may soon get stiff competition from bevacizumab (Avastin), which the FDA is also expected to shortly approve. Bevacizumab, also for treating metastatic colon cancer, will probably be approved to be used as an initial therapy, while cetuximab was approved only to be used after traditional chemotherapy had failed.

Also according to the Feb. 11 New York Times, avastin has been shown in clinical trials to prolong patients' lives by five months.

Cetuximab, which is manufactured by ImClone Systems Inc., has a controversial history. The FDA failed to initially approve the drug

for treating colon cancer in December 2001, a decision that led to alleged insider-trading activity. That activity landed the company's co-founder in prison and led to charges against Martha Stewart.

- The Washington Post is online at <http://www.washingtonpost.com/wp-dyn/articles/A37886-2004Feb12.html>.
- The New York Times report is online at <http://www.nytimes.com/2004/02/11/business/11biotech.html>.
- For more information on targeted therapies, see "In cancer treatment, targeted therapies are giving physicians and patients hope" in the December 2003 ACP Observer at <http://www.acponline.org/journals/news/dec03/cancer.htm>.

### ➤ HIGHER CUMULATIVE USE OF ANTIBIOTICS ASSOCIATED WITH GREATER BREAST CANCER RISK

Researchers have found that long-term antibiotic use may be associated with a greater risk of breast cancer.

The study, published in the Feb. 18 Journal of the American Medical Association (JAMA), examined the medical records of 10,000 adult women in Washington state, more than 2,200 of whom had breast cancer. According to the Feb. 17 Washington Post, women who filled more than 25 separate antibiotic prescriptions over an average period of 17 years had twice the risk of developing breast cancer than women who took no antibiotics. Findings were consistent for all types of antibiotics.

The authors stressed, however, that no causal link was found between antibiotic use and breast cancer, and that more research is needed. They did not rule out the possibility that women who use more antibiotics are naturally predisposed to breast cancer because of weaker immune systems or hormonal imbalances, the Washington Post said.

Researchers did conclude that findings bolstered the need for "prudent long-term" antibiotic use.

- A JAMA abstract is online at <http://jama.ama-assn.org/cgi/content/full/291/7/827>.
- The FDA press release is online at <http://www.fda.gov/bbs/topics/NEWS/2004/NEW01027.html>.

The following has been compiled by: Mohammed K. Zaidi, Member, IOMP Professional Relations Committee.

### ➤ LIQUID DRANO FOR CORONARY ARTERIES:

Intravenous doses of a synthetic component of "Good" cholesterol reduced artery disease in just six weeks time in a small study with startlingly big implications for treating the nation's No. 1 killer. The treatment used a laboratory-produced version of an unusually effective form of HDL, the good cholesterol that helps protect against heart disease by removing plaque, or fatty buildups, from the blood stream.

### ➤ NEW IMAGING TECHNOLOGY:

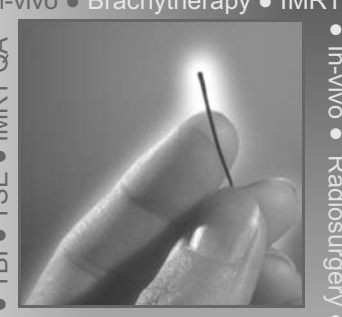
Change Detection System (CDS) highlights slight differences between digital images. This technology is an important breakthrough for security monitoring, medical imagery analysis, home surveillance, forensics and other image manipulation tasks. The powerful program aligns images, to within a fraction of a pixel, from handheld or other imprecise cameras, compensating for camera angle differences. Within seconds, once imperceptible differences are revealed as the program alternates between the two seemingly identical images. Greg Lancaster, a research scientist from Idaho National Laboratory (INL) demonstrated the program to a group of physicians by using his own

(continued on page 10)

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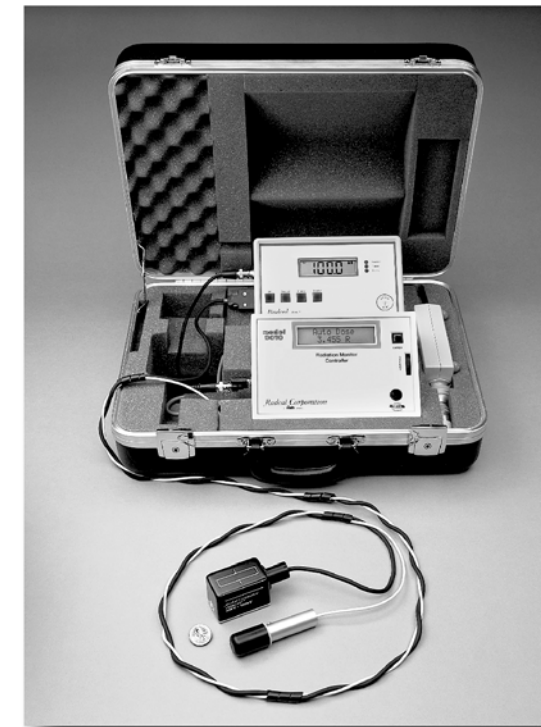
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## Status AAPM/IOMP Libraries – April 2004

Allan Wilkinson, Ph.D., Curator of Libraries

I recently assumed the duties of library curator from Marilyn Stovall who contributed so much to the success of this program for the past several years. She and Samantha Murray organized the activities of the library into an effective database which has greatly facilitated the transfer to me.

We currently have 63 active libraries in 41 countries. We ask that we hear from a library a minimum of once every two years to maintain active status. The 2004 update questionnaire was mailed to 70 libraries in April, 2004. The responses will be used to bring the records in our database up to date and to assess the needs of the respondents. Those libraries that do not reply will be contacted once again in a few months. If we still do not receive a response, the library will be placed on inactive status.

We receive an average of 1-2 inquiries about the program every month. There have been 3 donors who have contacted the library since February, 2004. One of them specified a recipient that was not on our list. That institution has since been contacted and once it returns the questionnaire, it will be placed on the active list.

IOPP continues to donate five books to new libraries. Our contact at IOPP is Julia Tancock. Kathy Burroughs at AAPM coordinates the donations of Medical Physics Journal subscriptions. She informed us that 42 members donated their 2004 subscriptions to the Library Program. We have faxed her the list of current address for the 42 recipient libraries. Each quarter, The Society for Radiological Protection mails their quarterly publication, *The Journal of Radiological Protection*, to all active libraries.

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

### New Publication From the IAEA— *Standards and Codes of Practice in Medical Radiation Dosimetry*

This two volume Proceedings of an International Symposium on Standards and Codes of Practice in Medical Radiation Dosimetry presents a refereed selection of papers that were given at the symposium held in Vienna from 25 to 28 November 2002. Emphasis is placed on dosimetry for therapeutic applications of radiation in medicine. However, some papers deal with dosimetry in diagnostic radiology and nuclear medicine. Although many dosimetry techniques are discussed, calorimetry is featured in one session exclusively. Many papers deal with dosimetry standards, protocols and comparisons. The need for accurate dosimetry for the treatment of cancer was a common thread throughout the symposium. *STI/PUB/1153, 984 pp.; 196 figures; 2003, ISBN 92-0-111403-6, English. 130.00 Euro*

For additional information, or to order the book, please contact: sales.publications@iaea.org • <http://www.iaea.org/books> tel.: +43 1 2600 22529 • fax:+43 1 2600 29302

## Euro-Conference on Medical Physics Training with EMIT e-Learning Materials—

Slavik Tabakov, Co-ordinator of EMIT and EMERALD projects

During September 1998 the EMERALD project Consortium organised the first International Conference on Medical Physics Training. This conference focused not only on the provision of professional training in Europe, but also on the implementation and use of the first e-Learning materials in the profession – EMERALD (covering X-ray Diagnostic Radiology, Nuclear Medicine and Radiotherapy Physics). Five years after this Conference (on 10-11 October 2003) the new project Consortium EMIT (incorporating most of the participants of the EMERALD project) organised another similar International Conference on Medical Physics Training. The objectives of this Second Conference were to assess the materials of the project EMIT (focused on MRI and Ultrasound Imaging Physics) and to discuss the development and delivery of Medical Physics training using e-Learning materials. The venue for this Conference was again kindly provided by the Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy.

Eminent professors and lecturers from 24 European countries, including representatives of IOMP, IFMBE, EFOMP, AFOMP and AAPM attended the Conference. Each participant received a free copy of the new e-Learning materials EMIT and took part in Working Groups discussing various elements of the training provision. The feedback sessions strongly supported the use of e-Learning in Medical Physics training and education as a very effective tool to study this complex field. It was noted that so far the EMERALD training materials are used in some 65 countries (including at the International Medical Physics College at ICTP) and this requires help with terminology translation from English. In this connection the EMIT project is preparing an e-Dictionary of Medical Physics terms. So far the Dictionary includes cross-translation from English, French, German, Italian, Swedish and Portuguese. Further expansion of the e-Dictionary was discussed with the colleagues from other countries. More information could be obtained from [www.emerald2.net](http://www.emerald2.net).

The Conference concluded with a Declaration of Intent, signed by all delegates, stating: “We all participants at the European Conference on Medical Physics Training, organized by EU Leonardo Project EMIT at the Abdus Salam International Centre for Theoretical Physics, ICTP, Trieste, Italy (10-11 October 2003), underline the very important role of Medical Physics Training for the effective and safe use of medical equipment in healthcare. The education and training in Medical Physics is vital for the development of healthcare and we highly appreciate the activities of the European Union, IAEA, ICTP, IOMP, IFMBE, EFOMP and other international and national institutions in this direction. We declare our intent to collaborate in the development of various initiatives in education and training, including e-Learning, related to medical technology (in its medical physics, medical engineering and medical application aspects), which will complement and integrate existing programmes. In this connection we agree to form a Network, which will facilitate our aim to harmonise activities and opportunities available to students and colleagues working in healthcare throughout Europe and other countries”.

## Report of the Science Committee

Cari Borrás, D.Sc.; IOMP SC Chair

The Science Committee (SC) completed its membership renewal process, initiated in Sydney during the WC 2003, by adding representatives nominated by the presidents of the IOMP chapters AFOMP, ALFIM, EFOMP and by the AAPM. The current composition of the committee was formally approved by EXCOM in February 2004 and is listed in the IOMP web site.

The SC continued its commitment to strengthen the relationship of IOMP with the International Atomic Energy Agency (IAEA), the International Commission on Radiological Protection (ICRP) and the International Society of Radiology (ISR) through the following actions:

- **IAEA:** The SC Chair represented IOMP at the First Meeting of the Steering Panel on the International Action Plan on the Radiological Protection of Patients in Madrid in January 2004. This Plan was developed and will be carried out in collaboration with several international organizations, among them IOMP. The SC members reviewed the plan and offered suggestions for its implementation. IOMP will play a significant role in the Plan by preparing and offering to the IAEA a cadre of qualified medical physicists in each country who are willing to participate in the Plan as experts in radiotherapy and imaging physics as it relates to patient safety. In regards to the recognition of medical physicist as health professionals, “the Panel agreed that recognition of medical physicists as health professionals was important and felt that IOMP should continue taking the lead in negotiating with ILO and informing other organizations and societies how they may help, including the necessary methods and contact information.” The full report of the meeting will be accessible at the IAEA web site.
- **ICRP:** 1). The review of ICRP reports by the IOMP SC has continued; three new ICRP reports are under evaluation. 2). The SC Committee contacted the ICRP officers to plan a Joint IOMP/ICRP Session at the International Conference on Medical Physics in Nuremberg, Germany in 2005 (ICMP 2005). By then, the new ICRP Recommendations will be ready for adoption by the Commission and the Conference will provide a good opportunity for discussion. The preparation of the program for this session is under way.
- **ISR:** A Joint IOMP/ISR session on “The Future of Radiology Must Include New Technologies: Image Guided Surgery and Functional Imaging” has been planned for the 23<sup>rd</sup> International Congress of Radiology in Montreal, Canada, in June 2004. The session, to be moderated by the SC Chair, will include presentations by four imaging physicists, among them Gary Fullerton, who designed and organized the program.

The IOMP also endorsed a Workshop on “Evolving Strategies in Radiation Oncology”, to be held in Rome, June 2004. According to the organizers “the workshop will provide a forum for discussion on the current status of the biological, physical/technological, and clinical aspects of radiation treatment of cancer patients and the several parametric models (both explanatory and predictive) of the radiation treatment effects thereof.”

## Report from the Education and Training Committee (ETC)

Slavik Tabakov, Ph.D., Chairman ETC

The members of the IOMP ETC for this term of office were approved as: Dr. Slavik Tabakov, Chairman; Dr. Anchali Krisanachinda, Secretary; Dr. C.M. Pathak; Dr. Wynand J Strydom; Dr. Ye-Cho Huang; Dr. Adel A. Mustafa; Dr. Ana Cecilia Pedrosa de Azevedo. At the WC2003, Sydney the activities of the IOMP ETC were highly praised and the Committee intends to continue its work with the same enthusiasm and effectiveness during this coming period. ETC activities will be based on the previously approved objectives and policies. Additionally the Committee will work in the field of helping and advice the evaluation of educational courses and curricula at graduate and post-graduate level.

Members of ETC were closely involved in the organization of the Second European Conference on Medical Physics training, Trieste, Italy, October 2003 (this Conference is described in a separate article in this issue). Another event endorsed by ETC was the Regional Course on Advances in Diagnostic Radiology and Nuclear Medicine Physics at Abu Dhabi, UAE, March 2004. ETC would like to encourage all colleagues running Medical Physics courses to submit these for enclosure to the Global Directory of Graduate Education Programs.

The International Medical Physics College at ICTP will run again this year (1 month, beginning on 30 August). Its Co-Directors (P.Sprawls, S Tabakov, A Benini) will focus the College activities not only towards studying Medical Physics, but also towards helping lecturers teaching the subject. As during the previous College (September 2002), many participants will be from Africa and other developing countries. In this connection the Co-Directors would encourage their respective societies to use this good opportunity to exchange information about running and planned education/training programs in the field. This forum could also be used (as in 2002) to discuss and help the organization of an African IOMP chapter.

## Newly Established Rule Committee

Fridtjof Nüsslin, Chair Rule Committee

At the World-Congress 2003 in Sydney the IOMP Delegates approved an updated version of By Laws and Statutes submitted by Azam Niroomand-Rad and Colin Orton. However, our steadily growing Organization with an increasing number of tasks and broad scale international collaborations challenges for frequent review and smooth adaptation of our Rules. Therefore IOMP Executive Committee decided to set up a Rule Committee where I have the honour to serve together with Azam Niroomand-Rad, Colin Orton and Peter Smith. Next issues on the agenda are specifying the detailed charges of that Committee as it is common for all IOMP Committees, to examine the existing Statutes / By-Laws to identify and resolve discrepancies and inadequacies, and to address new issues as identified by the members of the Committee, Delegates, Executive Committee on ongoing basis. In particular, EXCOM suggested to look at

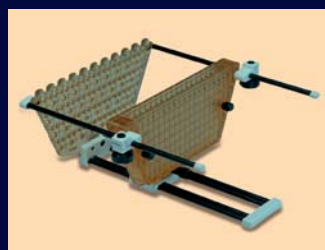
- Term for Chair and Members of Committee
- Rules for Acceptance of Proxy Votes at future World Congresses
- Guidelines for Post World Congress Travel Grant, in conjunction with PRC
- Criteria for Committee Membership

In this early phase, we therefore invite everybody for suggestions and modifications you may wish to be considered. We are aiming at putting a revised draft version of the present Statutes and By Laws for discussion on the net in 2005.

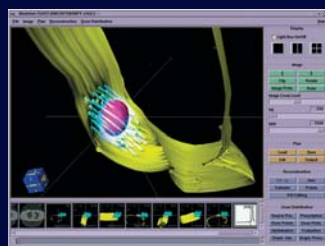


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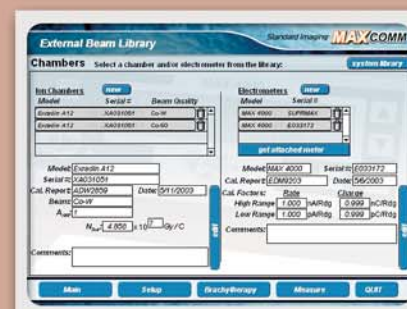
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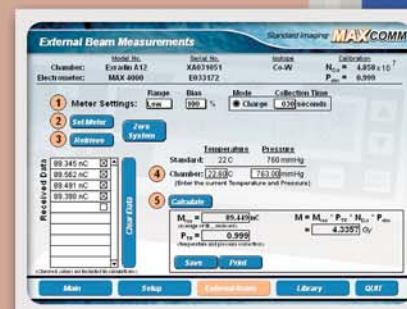
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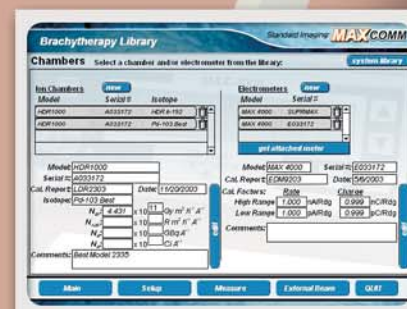
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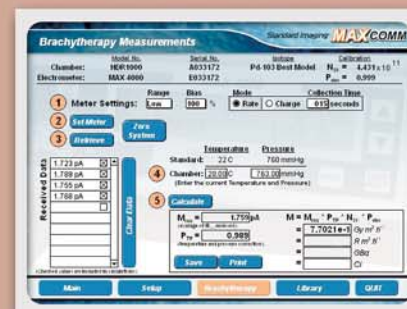
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## Calendar of Events— *Carter Schroy, Ph.D., MPW Associate Editor*

The following events can be found on the online calendar of the journal "Medical Physics" at <http://medphys.org/calendar/>. Please email your international events to the Calendar Editor, Carter Schroy, at [EventsEd@aol.com](mailto:EventsEd@aol.com) for inclusion in MPW. Deadlines for MPW are April 1 and October 1 for issues that are mailed several weeks later.

### 25-28 August 2004

33rd Annual Meeting of the European Society for Radiation Biology; Budapest, Hungary  
<http://www.osski.hu/err2004> | [esrb2004@hp.osski.hu](mailto:esrb2004@hp.osski.hu)

### 13-16 September 2004

DOSGEL 2004: 3rd Int'l Conference on Radiotherapy Gel Dosimetry; Gent, Belgium  
<http://www.dosgel.org> | [Yves.DeDeene@UGent.be](mailto:Yves.DeDeene@UGent.be)

### 19-20 September 2004

Workshop on Alternatives to Mammography (WAM); Winnipeg, MB Canada  
[GordonR@MS.UMANITOBA.CA](mailto:GordonR@MS.UMANITOBA.CA)

### 20-21 September 2004

44th Annual Meeting of the South African Association of Physicists in Medicine and Biology; Johannesburg, South Africa  
<http://www.wits.ac.za/SAAPMB/> | [laceyb@functions.wits.ac.za](mailto:laceyb@functions.wits.ac.za)

### 19-22 September 2004

Summer School on Medical Image Computing; London, UK  
<http://www.doc.ic.ac.uk/~dr/miua/summerschool.html> | [D.Rueckert@imperial.ac.uk](mailto:D.Rueckert@imperial.ac.uk)

### 23-24 September 2004

Medical Image Understanding and Analysis (MIUA 2004); London, England  
<http://www.miua.org.uk> | [D.Rueckert@imperial.ac.uk](mailto:D.Rueckert@imperial.ac.uk)

### 26-29 September 2004

3rd Iberian Latin-American and Caribbean Congress of Medical Physics; Rio de Janeiro, Brazil  
<http://www.rio2004.org> | [congress@rio2004.org](mailto:congress@rio2004.org)

### 26-29 September 2004

MICCAI-2004: 7th Int'l Conference on Medical Image Computing and Computer Assisted Intervention; St Malo, France  
<http://miccai.irisa.fr> | [Chair\\_miccai@irisa.fr](mailto:Chair_miccai@irisa.fr)

### 11-15 October 2004

11th World Congress on Neutron Capture Therapy (ISNCT-11); Boston, MA USA  
<http://meetingsandconferences.com/ISNCT-11/> | [rzamenhof@tufts-nemc.org](mailto:rzamenhof@tufts-nemc.org)

### 14-16 October 2004

9th National Conference on Biomedical Physics and Engineering; Sofia, Bulgaria (with international participation)  
[a.slavchev@ncrrp.org](mailto:a.slavchev@ncrrp.org)

### 14-18 November 2004

EPSM 2004, Engineering and Physical Sciences in Medicine; Geelong, Australia  
"Regional Healthcare Technologies - Overcoming the Tyranny of Distance"  
<http://www.epsm.org.au/2004> | [Penny.Kemp@petermac.org](mailto:Penny.Kemp@petermac.org)

### 28 Nov - 3 Dec 2004

The Radiological Society of North America Annual Meeting; Chicago, IL USA  
<http://www.rsna.org>

### 27 Aug - 1 Sept 2006

World Congress of Medical Physics and Biomedical Engineering; Seoul, South Korea  
<http://www.wc2006-seoul.org> | [wc2006@koconex.com](mailto:wc2006@koconex.com)

## A Medical Physics Museum as part of the Science Museum

By: *John Cameron, Ph.D. Professor Emeritus, Univ. of Wisconsin-Madison (e-mail: [jrcamero@wisc.edu](mailto:jrcamero@wisc.edu))*

Medical Physics organizations (international, national, and local) should make more educational material available on the Web. To do so they need the help of medical physicists who have produced such material or who find such material during their Web activities. I propose that we establish a Medical Physics Museum (MPM) in the Science Museum. (<http://www.sciencemuseum.us>). The Virtual Radiation Museum (VRM) is the only wing available but I hope to add a "Museum of the Body" (MoB) later this year. The URLs do not have to be located in the Science Museum, they can be linked to it. A brief summary should describe what is available if you go to the link and in which language. For example: PHYSICS OF THE BODY & IMAGING (IN PORTUGUESE) <http://www.lui-bertolo.hpg.ig.com.br> Much material is available on the web but it must be collected and organized as part of the MPM. A visitor to the Science Museum can do a search on the contents of the Science Museum to find what is available.

The MPM could have a room for "Medical Physics Organizations" where the IOMP and other medical physics organizations will be listed. Clicking on a particular organization will take you to the home page for that organization. I suggest MPM rooms for the following areas: radiological imaging (historical and modern), ultrasound in medicine, nuclear medicine, radiation therapy, MRI, radiation protection, etc. Each of these topics could have many links, some of which will overlap.

The MPM could have a "Medical Physics Journals" room with links to the home page for each journal. A "Medical Physics Organization" room would have links to the home pages of various medical physics organizations all over the world.

The most urgent need is for educational material on the Web for medical physicists. The recent IAEA radiation therapy text edited by Prof. Ervin Podgorsak is available on the web: <http://www.medphys.mcgill.ca/IAEABOOK/> and also at <http://www.naweb.iaea.org/nahu/external/e3/syllabus.asp>

I encourage medical physicists anywhere in the world to send me suggestions of appropriate URLs for the Medical Physics Museum.

## 3<sup>rd</sup> International WONUC Conference on the Effects of Low and Very Low Doses of Ionising Radiation on Human Health; Tehran-Iran

By: *Klaus Becker, Ph.D.; Berlin*

This conference, which took place in Tehran/Iran October 21-23, was the third in a series of biannual conferences. The first was in Versailles/France in 1999 the second in Dublin/Ireland in 2001. The next one has been scheduled around the end of June 2005 in Canada, followed by one in 2007 probably in Budapest/Hungary. The proceedings of the first two conferences have been published in the Elsevier Excerpta Medica Internat. Congress Series. The more important contributions of the Tehran conference will appear partly in the Internat. J. on Low Dose (ISSN 1477-6545), and partly in the Iranian J. of Radiat. Research. The organizer of these conferences is the International Council of Nuclear Workers (WONUC) based in Paris (president Prof. Dr. A. Maisseu – for details [www.wonuc.org](http://www.wonuc.org)).

Tehran, during the days of high-level diplomatic activities, was not the most likely place for an international conference on the low-dose issue. Indeed, despite the serious efforts of the conference chairman Dr. S. M. R. Aghamiri of the Beheshti University, this and some visa problems resulted in less international participations than in the previous conferences. Nevertheless, among the about 200 participants, there were several scientists from Japan, USA, Hungary, Germany, France, India, Holland, etc. The organizers provided excellent technical facilities including simultaneous translation for papers presented in Farsi, and warm-hearted hospitality.

Due to the unfortunate lack of more international contributions, many presentations, e.g. on surveys in Iran of trace elements in daily diets, external gamma radiation, dosimeter development and testing, monitoring results around various sites, etc., would perhaps have been more suitable for an Annual Meeting of the Iranian Radiation Protection Society. Other Contributions were devoted to medical physics and patient doses, and some of them, such as a review by A. Niroomand-Rad (USA) on radiation protection of patients, provided excellent state-of-the-art reports.

Several presentations led to interesting discussions, for example a paper describing liver cell damage in mice irradiated with 9 Gy, which the author apparently considered a "low dose". There seems to be not yet a generally accepted definition of "low doses". If the natural radiation level is used as a baseline, the question arises about its local fluctuations of around one order of magnitude, obviously without any detrimental health effects. Others define low dose as one electron hit per cell. It seems that a general consensus emerges around a dose of a few hundred mGy or mSv (connected by a questionable RBE), in a more or less restricted period of time. Perhaps the "Use of Fuzzy Logic to Epidemiology and Application to the Quantification of Effects" (A. Maisseu, France) could help to provide new aspects for the interpretation of some fuzzy results....

The increasingly intense discussion about threshold and hormesis was, as expected, an item of much interest. On the one hand, there was one author who carefully translated 1 mSv of dose reduction into thousands of dollars of money saved, but also a paper by K. Kant (India) on "Radiation Hormesis: The Validity of the LNT Hypothesis" with another mathematical model for the bi-phasic approach, demonstrating that also in India the discussion between supporters and opponents on the LNT hypothesis is progressing. Obviously, a clear majority of the active conference participants did not believe in LNT any more – including the author of this report,

who presented one of the keynote papers on "One Century of Radon Therapy", outlining the well-established therapeutic effects of radon treatments for painful joint diseases.

Probably the highlight of the conference was an excellent lecture by F. Darroudi (Leiden University Genom Technology Center, Netherlands) "DNA Damage and Repair, Genomic Instability and Radiation Induced Cancer: The Problem of Risk at Low Doses." He pointed out that epidemiological studies have insufficient power to detect cancer risks below 50 mSv, but that such low doses at low dose-rates are of primary importance in respect to social and economic factors in the industrial and medical uses of radiation, as well as for understanding common genetic factors that might determine inter-individual differences. He described the extensive work of his team on the fundamental mechanism, kinetics, and spectra of radiation-induced chromosome damage and repair elucidating the biochemistry and cellular pathways linking initial DNA damage, in particular double strand lesions, to cellular effects.

Fluorescence in situ hybridisation (FISH) techniques using chromosome, chromosome-arm, region, centromere and telomere specific DNA libraries improved the resolution of inter- and intrachanges. FISH images using more than ten colors and other sophisticated new techniques permit differentiation between radiation of different LET, and discrimination between whole- and part-body exposures in case of over-exposures.. Counting of dicentric is not suitable for retrospective dosimetry because of the unpredictable short half-life of this effect, but translocations can be relatively useful – considering the effect of age. It was of particular interest that the experimental data for fast neutrons showed, with some influence of dose and dose-rate, an average RBE around two, not twenty as recommended by ICRP.

Several other interesting papers dealt with biophysical radiation effects, e.g. by G. J. Köteles (Hungary), about modification of biological responses such as risk modulation by hormesis and adaptive responses, as well as genetic instability and the bystander effect. He emphasized as a result of in vitro studies the importance of antioxidants such as ascorbic acid, with which at doses below 250 mGy complete protection can be provided. He also studied the effects of doses in the 0.5-5 Gy range on the cell membranes. The influence of antioxidants and Bleomycine was also explored with comet assays in people living at a very high natural level (up to 10.000 Bq/kg Ra in soil) in Ramsar at the Caspian Sea (Acomet Study by A. M. Mohammadi et al., Iran). Another study concerning the haematology of housewives in the Ramsar region was the topic of one of the about 12 posters.

Besides various "no-comment-papers", there were several others well worth listening to, e.g. regarding radioprotective drugs such as ranitide and famotidine (M. Shahidi and H. Mozdarani, Iran), and thiazolidine compounds (S.J. Hoseinmehr and A. Shaffiee, Iran). As usual, the results have not been very convincing, but apparently this line of research is still alive in Iran. In conclusion: Despite some complications because of an unusual political situation, it appears that non of the foreign participants regretted attending this conference in one of the oldest and most spectacular centres of world culture.



**EDITOR'S CORNER—***(Continued from page 6)*

brain scan after he had a tumor removed (Bechtel GLOBE - Feb 2004).

➤ **MAGNETIC DRUG TARGETING IN CANCER THERAPY:**

The targeting chemotherapy drugs in the human body include the investigation of so-called biocompatible magnetic nano-carrier systems. For example, magnetic liquids such as ferrofluids can play an important role as drug carriers in the human body. As such, they can be used for drug targeting in modern locoregional cancer treatment. This model example demonstrates a simple setup to investigate an external magnetic field and its interaction with blood flow with a magnetic carrier substance. The model treats the liquid as a continuum, which is a good first step. The equations and theory are based on the Maxwell equations and Navier-Stokes equations. For a representative geometry (blood vessel), the Maxwell equations for a static magnetic field are solved. The resulting magnetic field is coupled to a fluid flow problem described by the Navier Stokes equations. The ferro hydro dynamics of the blood is studied by adding a magnetic volume force to the Navier Stokes equations, which stems from the solution to magnetic field problem.

➤ **NEW TEST FOR BREAST CANCER:**

A first-of-its-kind genetic test will soon be available to help women with breast cancer make one of their most crucial decisions: whether to undergo chemotherapy. If the chances of recurrence are seen as very low based on gene test, a woman may opt to not endure the vomiting, hair loss and high cost of chemo. If the odds of cancer coming back are high, she may view chemo as the difference between life and death.

➤ **NUCLEAR MAMMOGRAM CAN DETECT EARLIEST SIGNS OF CANCER:**

Researchers at Duke University Medical Center, Durham, NC, have developed a new nuclear medicine technique that can detect subtle changes in breast cells before a lump can be felt by hand or seen with traditional X-ray mammography. Such early detection should enable doctors to more successfully treat breast cancer before it has formed a tumor or spread to lymph nodes, said Martin Tornai, PhD, associate professor of radiology and biomedical engineering at Duke and developer of the device. The new technique uses <sup>99m</sup>Tc-sestamibi and a specially designed, miniature, rotating gamma camera to image breasts. Sestamibi is preferentially absorbed by the mitochondria. Cancer cells have more mitochondria than normal cells because of

their high metabolic rate, thus even small areas of cancerous tissue will "light up" on the scan as their temporarily radioactive mitochondria emit more gamma rays than the mitochondria of surrounding tissues.

Gamma ray tracers such as <sup>99m</sup>Tc-sestamibi have a short half-life and are broken down quickly by the liver and excreted. The amount of radiation exposure from a single diagnostic procedure is very small and the procedure would take 10 to 20 minutes per breast, and should be more comfortable for the patient than mammography. As a screening device, functional mammothography will not replace traditional mammography in most cases but it could become a useful adjunct device in the mammography clinic. The device could be useful to monitor the course of chemotherapy or radiation therapy in breast cancer patients because it can detect molecular changes in cancer cells (26th Breast Cancer Symposium, Dec 2003).

➤ **CANCERS:**

**Cervical Cancer** - the pop smear, an important screen for cervical cancer, is not always definitive the first time around. There is a spectrum on abnormality that may raise the suspicion of cancer and the need for a repeat test months down the line. A questionable Pap smear test is less worrisome when combined with a test for the human papilloma virus (HPV). If the test is negative, chances are good that there's no cervical cancer.

**Colon Cancer** - drinking coffee may be helpful as a preventive measure believed to reduce the risk of colon cancer including eating high fiber diet, drinking plenty of tea and taking aspirin. Regular screening - via stool analysis, sigmoidoscopy or colonoscopy - is the key to surviving colon cancer. Some important thing to get checked are: evidence of blood in the stool, after 50 years of age, a routine sigmoidoscopy every five years or a colonoscopy every ten years, report your doctor any bowel symptoms, such as constipation or diarrhea, abdominal pain or blood in stool.

**Bladder Cancer** - getting plenty of vitamin E by eating food like nuts and olive oil may help reduce the risk of bladder cancer - it is said that eating nutrient's help cure disease.

**Breast cancer** - A recent study reveals that modest amount of exercise, even just a easy half-hour walk a day, improve women's chances of surviving breast cancer, it is also a important prescription for recovery.

**DONATION OF USED EQUIPMENT – PRC report for July-December 2003.**

*Mohammed Zaidi, Member PRC-IOMP*

A 4 MV Clinac being shipped to Algalaa Hospital, Port-Said, EGYPT. Dr. Desouky is the Director for the hospital. The Clinac was very kindly donated by Albert Einstein Medical Center, Philadelphia, PA, USA - I am thankful to the hospital administration for this donation and especially to Mr. Alan Baker, Medical Physicist at the Center.

Several old instruments – Gammex switch box, diode lasers, Nuclear-Chicago exposure meter model 2588, Eberline Rad Owl model R0-1, Nuclear Associates Contour Gauge Model 17-650 and attachment to radiation detectors were very kindly donated by Mr. Jeff Limmer, Medical Physicist from Wausau Hospital, UW Cancer Center. IOMP has decided to send this donation to Idaho State University, Pocatello, ID, USA.

A used linear accelerator Varian Clinac 6/100 unit with a single photon energy source was very kindly donated by Mr. Brunicardi, Community Hospitals of Williams County, Inc, Bryan, Ohio, USA. The Clinac was shipped to The Hospital, Dr. Fatollah Rooshanzamir, Jumaira, Dubai, UAE.

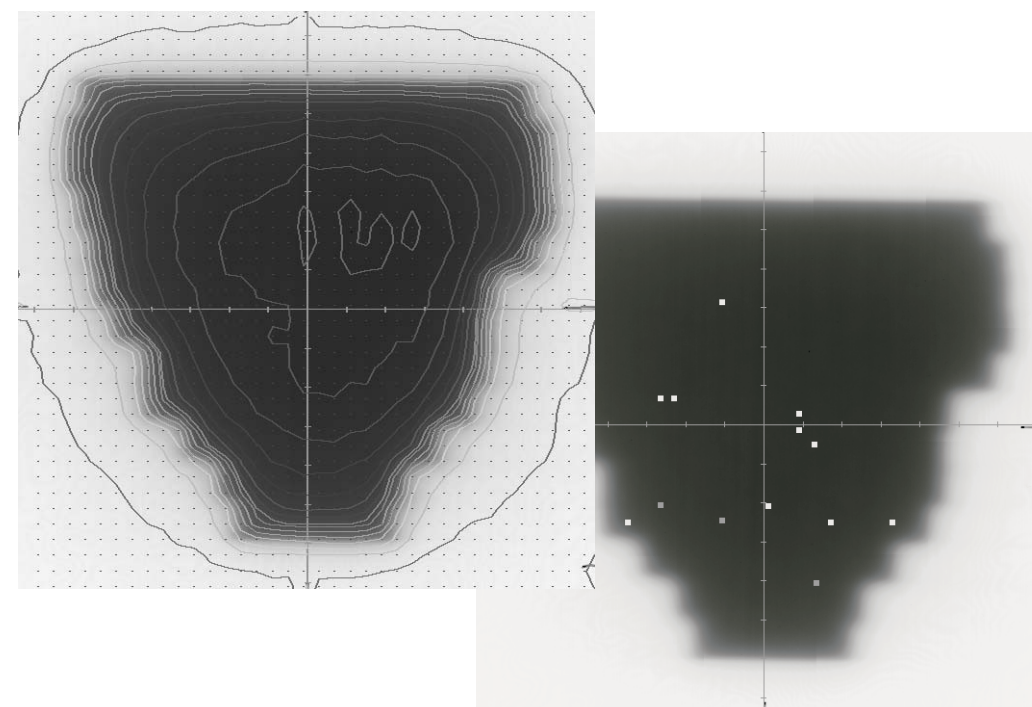
Used equipment needed: Linear accelerator, Theratron 780 Co-60, Automatic film processor, block cutter, film densitometer, radiation field analyzer, 2D and 3D treatment planning system (TPS), direct patient dose monitor and ultrasound machine. The TPS can be Windows-based or UNIX-based. The only requirements from my customer is that a digitizer tablet be present and that a wide-carriage printer (preferably plotter) be available.

Shipping arrangements: The institutions that need used equipment should be ready to pay or make arrangements for shipping at a very short notice.

Dr. Ajai Kumar Shukla from India will be helping me in IOMP efforts to deliver quality service in getting and transferring these donated used equipment from generous donors to those who need them badly.

The equipment donated to IOMP Used Equipment Donation Program is generally in good working condition but we don't guarantee its usefulness. The donations to IOMP are sometime tax deductible. If you want to donate or want some used equipment donated to your organization, please contact Mohammed K. Zaidi at Phone: 208-526-2132, Fax: 208-526-2548 or e-mail: [zaidimk@id.doe.gov](mailto:zaidimk@id.doe.gov)

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