**Volume 21, Number 2** **December 2005**

# MEDICAL PHYSICS WORLD

**Bulletin of the International Organization for Medical Physics**
**IOMP Home Page Address: http://www.iomp.org**

74 Adhering National Organizations 2005

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 • Mexico Nuevo Leon • Moldova • Mongolia • Morocco • Nepal • Netherlands • New Zealand • Nigeria • Norway • Pakistan • Panama • People's Republic of China • Philippines • Poland • Portugal • Republic of China, Taiwan • Romania • Russia • Singapore • Slovenia • South Africa • Spain • Sri Lanka • Sudan • Sweden • Switzerland • Tanzania • Thailand • Trinidad & Tobago • Turkey • Uganda • Ukraine • United Kingdom • United States of America • Venzuela • Zambia • Zimbabwe

## President's Message –

*Prof. Azam Niroomand-Rad, Ph.D., President IOMP*

*Prof. Azam Niroomand-Rad,*
*President of IOMP*

Dear Fellow IOMP Member,

I have a lot of information to share with you on this writing. Although not in order of importance, I will start off with the good news first:

*Classification of Medical Physics Profession on ILO (ISCO-08) List*

My last report to you on this subject was about a year ago (MPW, Vol. 20, No. 2, Page 10, December 2004). At that time, I reported that the medical physics profession is not currently listed in the existing international list of occupations known as International Standard Classification of Occupations (ISCO) that was last revised in 1988 and hence is known as (ISCO-88). The International Labor Office (ILO) in Geneva maintains and updates this list approximately every 20 years. This list, which is made available to the countries by the United Nations Statistical Commission, is used to prepare Population Censuses and national listing of occupations.

In preparation for the next revision of ISCO that is expected to be updated by 2008, IOMP provided information to ILO on the number of medical physicists in different countries, the education and training requirements, and the tasks performed by them. In the IOMP's initial petition to the ILO Director (Dr. Farhad Mehran), submitted by Prof. Keith Boddy (1996), medical physicists were described as health professional and hence should be listed in Health Professional group 22 of the ISCO list. However, this request was later ignored by the next ILO Director (Dr. Hoffman) who examined the available evidence and recommended that medical physics should be listed in unit group 2111 with other physicists and astronomers. A few years later, when I was briefing the new ILO Director (Ms. Adriana Mata-Greenwood) on the status of medical physics worldwide, she agreed to re-examine the documents that were submitted to her. In particular we were able to demonstrate that medical physics is indeed listed in health profession of many countries such as Australia, Canada, China, Italy, The Netherlands, and the USA.

In late 2004 and early 2005, ILO prepared a web-based questionnaire to obtain feedback, general guidelines, as well as concrete recommendations for the creation of new occupational groups from National Statistical Agency, Employment Services, Vocational Training Institutes, and Employers' and Workers' Organizations. On the creation of a unit group for medical physics, the respondents were asked whether a unit group should be created for Medical Physicists, within sub-group 222 Health Professionals (except nursing) or within sub-group 211 Physical, Mathematical and engineering science professionals.

By early April 2005, we (unofficially) learned that the majority of responses believed Medical physicists were not numerous enough to merit creation of a unit group. Concerning whether they should be classified together with Physicists in unit group 2111 Physicists and astronomers or with Medical doctors in unit group 2221 Medical doctors, replies were evenly distributed in all regions of the world, with a slight majority in favor of allocating them to unit group 2221. A few responses included recommendations for improving the proposed definition, to change the order of tasks, clarify the scope of the tasks, the context of the tasks, so as to not overlap with existing occupations (e.g. Medical Imaging professionals).

By late April and early May 2005, a re-ordered list of medical physics tasks and a copy of the EFOMP (European Federation of Organizations in Medical Physics) "position document" on Medical Physics and the Common Position (CP) No 10/2005, adopted by the European Parliament and the Council of the European Union, were provided to the ILO Director (Ms. Adriana Mata-Greenwood) for reconsideration. In the EFOMP position document, medical physics profession is described as a "regulated profession" within the Human Health Care field. Moreover, we were able to pursue the government agencies in countries that had not responded to the ILO questionnaire to reply.

By late May 2005, we (unofficially) learned that once the remaining countries responded, it turned out that a significant majority of respondents wanted to see Medical Physicists with Medical doctors in Health Professional category 222, although not separately identified as a unit group, because there aren't that many Medical physicists worldwide. Subsequently we (unofficially) learned

*(continued on page 4)*

### Table of Contents





## Secretary General's Report –

*Peter H S Smith, B.A., Ph.D.*

The approaching World Congress at Seoul, Korea (August 2006. www.wc2006-seoul.org) is now becoming the focus of attention for Officers and Chairs, not only because it is the main event in the IOMP calendar but it marks the end of the 2003 - 2006 period for officers and committees and the start of a new three year period. I am sure that I am not the only one who thought three years was a relative long period and there was enough time to achieve our objectives – how wrong! However now is time to focus on key targets to be achieved by the time of the Congress and to put into place arrangements to enable the new set of officers and committees to be elected, or appointed, for 2006-2009 period to start work immediately after the General Assembly at the Congress.

One of the initiatives undertaken in the current period has been the initiation of a review of the activities of IOMP and the preparation of a strategy— a consultation document has been issued and a copy is on the website (www.iomp.org ). There is also a short article on it elsewhere in this issue. Please let us have your comments and views. The document will then be revised and a final draft considered by Council at Seoul.

One of the areas considered in the consultation document is support for developing counties. To coincide with the joint Heads of State and Government meeting last September at the United Nations General Assembly the main international scientific, engineering and medical organisations (including ICSU of which IOMP is a member through IUPESM) made a joint statement to the meeting about the science, technology, and innovation required to achieve the United Nations Millennium Development Goals (see www.icsu.org ). Of the various essential strategies and actions identified in the statement there is one concerning the creation of centres of excellence in science, engineering and medicine in developing countries. What small contribution to the Millennium goals can IOMP make?

The Executive Committee had a virtual meeting in August and September – rather protracted due to various meetings members were attending and other delays. Notes of the meeting are on the website. Council had a special meting in November to consider a change to the Statutes concerning a proposal for the election of officers by electronic ballot three months prior to the World Congress. This was followed by the annual virtual Council meeting. Minutes of both meetings are on the website.

## Report of the Scientific Committee –

*Cari Borras, D.Sc., Science Committee Chair*

The main activity of the IOMP Science Committee in this period was the preparation and execution of the joint IOMP/ICRP session at the 14th International Conference of Medical Physics in Nuremberg, Germany, on September 16, 2005. The session examined the proposed new recommendations of the ICRP and their impact on medical physics. Dr. Claire Cousins, a consultant interventional radiologist at Addenbrooke's Hospital in Cambridge, UK, and the new chair of ICRP Committee 3, summarized the new recommendations and elaborated on the need for justification of medical exposures. Dr. Jolyon Hendry, a radiation biologist, initially at the Paterson Institute for Cancer Research in the UK, and now at the Division of Human Health at the IAEA and a Member of ICRP Committee 1, presented the latest findings on the effects of radiation on tissues at high doses. Dr. Cari Borrás, the chair of the IOMP Science Committee, discussed the proposed changes in radiation protection dosimetry, mainly the incorporation of ICRU operational quantities. Dr. Douglas Shearer, Director of Medical Physics at Rhode Island Hospital/Brown University in the United States and secretary of the IOMP Science Committee, reviewed some of the material presented and cautioned against the misuse of dose constraints in shielding calculations for medical facilities. After the presentations, Dr Gary Fullerton, Director of Radiological Sciences at the University of Texas Health Sciences Center in San Antonio, Past President of the AAPM and Past Secretary-General of the IOMP and the IUPESM, led the discussion, which mainly focused on medical exposures and the role medical physicists play in implementing radiation protection standards.

This is the second time that the ICRP presents its views in an IOMP meeting –the first time having been at the WC2000 in Chicago. Given that ICRP guidance ends up in national radiation protection legislation and thus, impacts on patient care and the work of medical physicists, a working relationship between the IOMP and the ICRP should be sought. These joint sessions at IOMP meetings are the first step towards formalizing such a relationship.

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

that in a June 2005 meeting, ILO (preliminarily) approved to enlist the medical physics profession in the Health Professional category 222 in the next revision of ISCO that (hopefully) will be approved by the ILO Governing Body by December 2007 as (ISCO-08).

*International Commission on Medical Physics (IComMP)*

In the previous issue of this bulletin (MPW, Vol. 21, No. 1, Page 1, June 2005), I reported to you that the IOMP proposal for establishment of a bilateral relationship with the International Union of Pure and Applied Physics (IUPAP) was approved enthusiastically by the IUPAP Council and Commission Chairs Meeting in Muambai, India on October 15, 2004. Now I am pleased to inform you that this proposal was also approved by the 25th General Assembly of the IUPAP that was held in Cape Town, S. Africa, on October 26-28, 2005. With the establishment of the IOMP-IUPAP relationship we are certain that the collaboration of the medical physicists with other physicists in areas of common interests will be facilitated and strengthened.

Furthermore, it should be noted that within the IUPAP organization, the IOMP organization (as it exists and functions) is recognized as an Affiliated Commission (AC.4) and is referred to as the International Commission on Medical Physics (IComMP). Whereas within the IOMP organization, a Liaison Committee on the International Commission on Medical Physics (IComMP) is being formed to facilitate the cooperation of the medical physicists with the physicists who have the same academic interests in research and education. The details on the charges, roles, and activities of the IComMP Liaison Committee are now being drafted by the Rules Committee for your review and approval in WC-2006 in Korea. Once this is finalized, we can officially invite IUPAP members from the Commission on Biological Physics (C6), the Commission on Education (C14), and/or any other Commission who have common interests to join us in the advancement of academic aspects of medical physics. In addition our members will be able to take part and collaborate in the activities of the 18 sub-disciplinary Commissions and 3 Affiliated Commissions in IUPAP. See http://www.iupap.org for more details. Lastly, IOMP will be eligible to apply for some modest conference grant (~$1000 / year, or $3000.00 every 3 years) to IUPAP for organizing international meetings and conferences.

*Invitation for IOMP Committee Chair and Membership (2006-2009)*

As of WC-2006 in Korea, new Committee Chairs and Committee Members will be appointed to serve from September 2006 through September 2009. The current committee activities including the name of the Chair and membership are available at the website. If you are interested in getting involved in IOMP activities, now is the best time. Following is the list of committees for your reference:

- Awards and Honors Committee (Chair, Dr. Perry Sprawls: sprawls@emory.edu)
- Education and Training Committee (Chair, Dr. Slavik Tabakov: slavik.tabakov@kcl.ac.uk)
- Finance Committee (Chair and Treasurer, Dr. George Mawko:gmawko@dal.ca)
- International Advisory Board (Chair, Dr. Kwan Ng: dwlng@tm.net.my)
- Professional Relations Committee (Dr. Stelios Christofides: cstelios@cytanet.com.cy)
- Publication Committee (Chair, Dr. Kwan Ng: dwlng@tm.net.my)
- Rules Committee (Chair, Dr. Fridtjof Nusslin: nuesslin@lrz.tu-muenchen.de)
- Science Committee (Chair, Dr. Cari Borras: cariborras@starpower.net)

Please contact the current Committee Chair and/or myself if you are interested to serve as Chair, or Committee Member.

*Invitation for Editor of Medical Physics World (2006-2009)*

As of WC-2006 in Korea, Dr. Ishmael Parsai plans to step down as the Editor of the Medical Physics World (MPW). He has served for publication of MPW for more than 10 years; initially as Associate Editor and then as Editor. He has done an excellent job in meeting the growing financial needs of this bulletin in printing, shipping and handling costs through advertisments. If interested to serve as the Editor of MPW, please contact Dr. Parsai, (eparsai@meduohio.edu), Dr. Peter Smith (peter.smith@mpa.n-i.nhs.uk) or myself.

*Termination of IOMP Agreement with Institute of Physics Publishing (IOPP)*

The book business, including all contracts, licenses, copyright and stock of the Institute of Physics Publishing (IOPP) were purchased by Taylor and Francis Group LLC as of July 1, 2005. This issue was discussed with EXCOM and Chairs. After numerous (unsuccessful) discussions with IOPP, it was decided that we had no option except to agree with termination as of August 18, 2005.

IOMP Strategy Planning Document:

In an effort to better understand the strength (S), weakness (W), opportunities (O), and threats (T) faced by the International Organization of Medical Physics (IOMP), in January 2005, the Executive Committee (EXCOM) of IOMP recommended that the activities of the IOMP be reviewed and approved by the IOMP Administrative Council every 3 to 6 years at the World Congresses. As part of this review process, a "Strategy Planning Document", will be drafted, reflecting the consensus views of the membership on the short-term and long-term plans and priorities of the organization. Such a document will be useful internally by serving as working guidelines to EXCOM, Committee Chairs, and the greater organization. It will also be valuable externally to a variety of organizations including potential sponsors, grant awarding bodies (e.g. charitable bodies and foundations), Corporate members, as well as to those organizations that we have mutual interests such as IUPESM (International Union of Physical and Engineering Sciences in Medicine), IFMBE (International Federation of Medical and Biological Engineering), IAEA (International Atomic Energy Agency), WHO (World Health Organization), and IUPAP (International Union on Pure and Applied Physics).

We are currently in the early stages of developing first draft of such a "Strategy Planning Document". This document should be reviewed and updated on a regular basis. It has been suggested that this first draft should include plans and priorities extending to 2012, with a major reviews at the WC in 2006. Clearly, those parts dealing specifically with 2009 and beyond will be tentative at this stage. It should be noted that the initial draft of the attached document was prepared by the Secretary-General and has been circulated for comments to EXCOM and Committee Chairs. The comments received were incorporated into the "DRAFT Strategy Planning Document", dated November 2005, which was subsequently submitted to the members of the Administrative Council for consultation. This document is also posted on the IOMP website. Your detailed comments are most welcome, in particular on the objectives and proposals put forward in bold italic blue. Please keep in mind that in this planning process, equally important to the organization is what is considered to be outside of its purview and hence should not be pursued. We plan to incorporate your comments and submit a final version of this document as "Strategy Planning Document (2006-2012)" for adoption and approval by the Administrative Council at the WC-2006 in Seoul, Korea in August 2006. Please send your comments to Dr. Peter Smith, Secretary-General, peter.smith@mpa.n-i.nhs.uk . I look forward to reading your comments. Thank you.

# ICMP 2005: 14th International Confernece of Medical Physics: A Great Success –


*Peter H.S. Smith, Ph.D., Secretary General, IOMP; and Willi Kalender, Ph.D., University Erlangen-Nuernberg*


The IOMP's 14th ICMP was held at Nuremberg, Germany in September and was joint conference with the European Federation of Organisations in Medical Physics (9th EFOMP Congress) and the German Society of Medical Physics (36th Annual Meeting of DGMP). It also included the annual meeting of the German Association of Biomedical Engineering (DGBMT). The conference was very efficiently hosted by the DGMP and the Conference President was Prof. Willi Kalender.

The conference was the both first IOMP collaborative meeting with one of the medical physics regional organisations and the first in a new series of IOMP international conferences to be held between the triennial World Congresses. By joining the meetings of four societies, it was possible to provide a comprehensive and diverse program that offered in-depth insight into the broad spectrum of medical physics, biomedical engineering and healthcare in general. Many excellent invited lectures and refresher courses contributed to a well-rounded, high-class conference. Recent developments in imaging (CT, Ultrasound, MRI, and others) were presented as well as achievements in therapy, radiation protection, education, and oncology.

Over 1300 participants from 52 countries attended the conference from September 14 to September 17. The 968 accepted presentations were divided into twelve tracks, 532 of them were accepted as oral presentations and 405 as posters. Most popular tracks, as measured by number of accepted abstracts, were "Radiation Oncology Physics" (149 abstracts), "Diagnostic Imaging" (151 abstracts), "Diagnostic and Therapeutic Instrumentation" (109 abstracts) and""Image and Biosignal Processing, Modelling & Simulation" (147 abstracts). The IOMP were involved in the arranging the scientific programme, particularly in relation the Education and Training/Continuing Professional Development track and the IOMP/ICRP special session.

As expected, most participants were visitors from Germany (738), with 201 participants from 31 other European countries. There were 104 participants from outside Europe (a substantial number, 48, from the USA, and 10 participants from each of Canada and Australia).

Diversity and a high standard were prominent features of the industry exhibition, with 40 exhibitors from the health care and medical physics sector attending. Some exhibitors also offered dedicated lunch sessions.

The social programme included the Icebreaker Party and many participants had the opportunity to explore the historic city centre. The highlight was the official State Reception offered by the State of Bavaria on the Friday night at the historic Nuremberg castle.

# Editor's Corner — *E. Ishmael Parsai, Ph.D., MPW Editor*

This column of MPW is dedicated to provide an update on new information source and related news topics in the fields of Medical and Health physics. Often we list references 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. In addition, 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@meduohio.edu**.

### Brain Scan Study of Smokers Reveals Signature of Craving

Not all smokers are alike when it comes to cravings, and a new study conducted by researchers at Duke University Medical Center suggests the difference may lie in their brains' sensitivity to drug cues. The researchers found that smokers who report a greater urge to smoke after a period of abstinence also exhibit stronger brain activity after viewing smoking-related images, such as others smoking or a pack of cigarettes. Smokers who noted fewer cravings showed stable brain responses to the same drug cues, despite hours of deprivation. The findings suggest important differences among smokers in brain responses that underlie the smoking habit, the researchers said. What's more, they added, such brain scans may yield diagnostic tests for predicting which smokers will benefit most from particular quitting methods. The team reported its results in an article in the journal Neuropsychopharmacology in July 2005. The research was supported by the National Institute on Drug Abuse. Results from this study suggests that smokers' responses to drug cues are important in maintaining the smoking habit and also serve as strong triggers to return to smoking for those who have quit according to Dr. McClernon, a lead author for this study. While scientists have thought that nicotine is the primary agent responsible for cigarette addiction, recent evidence suggests that conditioned responses to sensory cues also play an important role. Functional brain imaging studies of smokers have found increases in brain activity in response to smoking-related images in areas associated with attention, motivation and reward. However, those studies examined smokers only after a period of overnight deprivation from smoking. To further explore this phenomenon, the researchers examined smokers' brain responses in attention, motivation and reward regions after a period of overnight abstinence from smoking and after smoking as usual. While their brains were scanned, smokers saw smoking-related pictures and pictures of everyday people and objects, such as a stapler or door knob. The researchers also asked participants to rate the intensity of their craving for cigarettes. The researchers scanned the subjects' brains using functional magnetic resonance imaging, in which harmless magnetic fields and radio waves are used to produce images depicting blood flow in brain regions. That blood flow reflects brain activity in those regions.

As a group, smokers' brain responses to drug cues remained stable regardless of the duration of time since their last cigarette, found the researchers. However, further analysis revealed that those smokers who reported more intense cravings after deprivation also exhibited heightened sensitivity to smoking-related images compared to those who craved cigarettes less.

The excitement in these findings is that the scientists will begin to understand which brain regions may be involved in cigarette craving.

### Lung Cancer Survival Better In Women

Untreated, women with lung cancer live longer than men. Women with lung cancer are living longer than men, even when the disease is untreated. A new study presented at CHEST 2005, the 71st annual international scientific assembly of the American College of Chest Physicians (ACCP), found that in patients receiving treatment for lung cancer, women had significantly better survival rates than men. However, in untreated patients, women also had a 21 percent decreased risk of death as compared with men, leading researchers to believe lung cancer in women has a different biologic behavior and natural history than in men. Researchers from Mount Sinai School of Medicine reviewed 18,967 cases of stage I and II non-small cell lung cancer diagnosed between 1991 and 1999 from the Surveillance, Epidemiology, and End Results registry linked to Medicare records. Patients were grouped into three categories according to treatment received: surgery, radiation or chemotherapy, and untreated cases. After adjusting for comorbidities and general life expectancy, researchers found that women in the three groups had significantly better cancer specific, overall, and relative survival than men. In treated patients, lung cancer specific 5-year survival for women was 54% compared with 40% for men and women had a 30% decreased risk of death compared with men. Among untreated patients, women had a 21% decreased risk of lung cancer deaths after adjusting for differences in age, race, socioeconomic status, access to care, and cancer histology. Researchers also found that women lived longer than men after controlling for age, race, disease stage at diagnosis, histology, median income, geographic area, access to care, and type of treatment. The article indicates that gender clearly plays a role in the survival rate of men and women. They conclude that physicians caring for patients with lung cancer should consider the inherent progression of lung cancer among men and women when deciding on a patient's course of treatment.

### Lung-Sparing Treatment for Cancer Proving Effective

Lung cancer patients with extenuating health problems may have an alternative to traditional radiation therapy through a lung-sparing procedure. McGarry, et. al, from Indiana University School of Medicine reported their findings in an article published in the November 2005 issue of the International Journal of Radiation Oncology, Biology and Physics that Patients with early stage non-small cell lung cancer responded well to high doses of radiation administered through extracranial stereotactic body radiation therapy. In this article the authors report that in a Phase I clinical trial, which looked at the safety and efficacy of the procedure, 47 individuals with early-stage lung cancer who normally would have received surgery and radiation therapy were treated. These patients had extenuating health problems that made them poor candidates for surgery. "Patients receiving the extracranial stereotactic body radiation were spared the trauma of surgery but were able to undergo higher doses of radiation for a shorter period of time than the standard treatment. The authors refer to this treatment as a lung-sparing approach, and this study shows it is one of the most effective options for lung cancer patients for whom surgery is not an option. Using precision mapping of the tumor and a sterotactic body frame that keeps the patient virtually immobile, physicians escalated radiation dosages, directing it all to the tumor site and sparing healthy surrounding tissue. The mapping allows physicians to administer higher doses of radiation while safeguarding uninvolved tissue and organs. Patients received three treatments in seven to 10 days versus standard therapy of 35 treatments over a six-week period. Physicians treated patients in this study with escalating doses of radiation therapy and were surprised that the careful planning resulted in patients tolerating very intense treatment with few long-term side effects. Only one patient in the higher dose groups had a return of the treated cancer, although 14 of the 47 patients developed metastasis of their lung cancer. Using the high doses achieved in the first phase of the research, a second trial of more than 70 patients was completed over a year ago. A median follow-up of two years revealed only three of the patients had a cancer recurrence. These optimistic preliminary results of the second trial were reported at the October meeting of the American Society for Therapeutic Radiation Oncology in Denver, Colo. Final analysis of this data will be completed in 2006. This group plans to treat patients with early stage lung cancer using intense therapy to control their lung cancer followed by mild chemotherapy in an effort to control microscopic disease which can spread early in the process. The

*(continued on page 15)*

# ADVERTISING RATES* / ORDER FORM
# MEDICAL PHYSICS WORLD

I wish to reserve the following advertising space in "Medical Physics World" *(Please circle space desired)*

| SIZE | PRICE* | WIDTH inches | WIDTH cm | DEPTH inches | DEPTH cm |
|---|---|---|---|---|---|
| 1/6 page | $282 (U.S.) | 3-3/8 | 8.6 | 3-1/4 | 8.3 |
| 1/5 page | $340 (U.S.) | 3-3/8 | 8.6 | 4 | 10.2 |
| 1/4 page | $400 (U.S.) | 3-3/8 | 8.6 | 4-7/8 | 12.4 |
| 1/3 page | $513 (U.S.) | 3-3/8 | 8.6 | 6-5/8 | 16.8 |
| 1/2 page | $745 (U.S.) | 3-3/8 or 7 | 8.6 or 17.8 | 10 or 4-7/8 | 25.4 or 12.4 |
| Full page | $1350 (U.S.) | 7 | 17.8 | 10 | 25.4 |
| 2-Color | $2000 (U.S.) | 7 | 17.8 | 10 | 25.4 |
| 4-Color | $2600 (U.S.) | 7 | 17.8 | 10 | 25.4 |

**Multiple Submission Discount**

| | 1/6 page | 1/5 page | 1/4 page | 1/3 page | 1/2 page | Full page | Two Color | Full Color |
|---|---|---|---|---|---|---|---|---|
| 2x | $265 | $320 | $375 | $480 | $695 | $1250 | $1900 | $2450 |
| 4x | $255 | $305 | $355 | $460 | $670 | $1200 | $1850 | $2400 |

**DEADLINES FOR ORDERS AND AD COPY**
**June Issue: April 1st • December Issue: October 1st**
Camera-ready copy preferred *(Negative emulsion down, and prefers 150 line screen for printing)*

Order Date: _____

Company Name: _____

Material Name/ID: _____

Contact Name: _____

Address: _____

Phone: _____ Fax: _____

Email: _____

☐ **Check enclosed** *(Please make check payable to "Medical Physics World" and send to: E. Ishmael Parsai, Ph.D., at address below.)*
☐ **Please bill me at this address:**

Contact Name: _____

Address: _____

Phone: _____ Fax: _____

Email: _____

**Direct orders and checks to the Editor: E. Ishmael Parsai, Ph.D.**
Department of Radiation Oncology, Medical University of Ohio
3000 Arlington Avenue, Toledo, Ohio 43614-2598 U.S.A.
Tel: (419) 383-4541 • Fax: (419) 383-3040 • Email: eparsai@meduohio.edu

**15% discount rate for IOMP Corporate Affiliates (not applied to Multiple Submission Discount Rate) Rates may change without prior notification*

Rate Card No. 11, Rev. 10/96 Effective Dec. 96 Issue



# CONSULTATION: A Review of IOMP's Activities and Draft Strategy

*- Peter H S Smith; IOMP Secretary-General*

*'To contribute to the advancement of medical physics in all its aspects"* is one of the key objectives of IOMP. Is IOMP fulfilling this objective adequately or effectively? What should its priorities be? Do national organisations consider that the dues they pay are being put to good use? These and other questions are behind the issue of a consultation document''Activities and Strategy of the International Organisation for Medical Physics', available on the IOMP website (www.iomp.org).

The document has a forward by the President and five sections.

- Past, Present and Membership.
- Current Activities and Proposals for Developments.
- External Relations.
- Organisation and Finance.
- Strategy.

Comments and views are requested, not only on the document as a whole and the overall future direction IOMP, but on the specific proposals and suggestions made (in italics in the text) and explicit questions posed (in bold and green).

In the first section there is a brief introduction, a short history, including the relationship with the International Federation of Medical and Biological Engineering (IFMBE) and the joint, with IFMBE, umbrella body IUPESM - the International Union of Physical and Engineering Sciences in Medicine, and an outline of the current membership. There are over 16,000 medical physicists worldwide and 73 countries and four regional chapters or federations are affiliated to IOMP. One of the questions posed in this part of the consultation document relates to direct support for medical physicists in countries where there is no national organisation and to national organisations where the numbers are so low that it is difficult to sustain an effective organisation. What services or help could, or should, IOMP provide?

The subject of the second section is what its title states and includes proposals to further develop many of the current activities – the main limitation being financial resources. However the organisation's greatest resource is its members and more could effort should be made to harness the willingness of members to help across a range of activities. Major proposals put forward are the development of two websites, one establish an on-line international data base of medical physics reference materials, such as standards, calibration protocols, survey and monitoring techniques, and the other a website that will provide a database of accredited educational and training materials available. Most of the material on both sites will be accessed through links to other websites. Another area explored and proposals made regard the development of a database of medical physics experts, to undertake tasks such providing expert assistance to developing countries or commenting on consultative documents from relevant international bodies.

A very important area of IOMP's activities is assistance to developing countries; there are three specific programmes at the moment – library, equipment and travel assistance. Many medical physicists do help and more are willing to help but channels need to be found to harness their talents and time, such as the database of experts mentioned above.

The relationship with the medical and biological engineering community is examined in the section 'External Relations'. The World Congress demonstrates the overlap of the work of physicists and engineers and a number countries have national organisations covering both professions. Where should IOMP be heading in relation to our engineering colleagues? More joint activity through IUPESM? More direct links with IFME? Where areas or activities should be carried out together? Another aspect addressed in this section is links with other international organisations such as IAEA, WHO, ICRP etc. The need to develop a direct link to WHO has been identified as a particular priority.

Form should follow function and therefore the internal organisation of IOMP is addressed next. Questions are raised for debate about the composition of Council and the committee structure. These issues will become clearer as the strategy and objectives are developed. On the finance side the IOMP relies mainly on subscriptions and profit (if any) from World Congresses. To take IOMP activities forward more regular funding is required.

The final section, which is at a very early stage of drafting, starts to develop an overall strategy. The initial discussions on this document have highlighted a number of core activities:

- Support for developing countries.
- Development of a virtual resource centre on education, training and scientific matters.
- Promoting meetings, in particular the new ICMP regional conferences.

There are two key resources to achieve these goals:

- Increased finance.
- Enhanced website.

Once comments have been received a revised document will be prepared and submitted to Council at Seoul. To implement the strategy it is proposed to develop a plan for 2006-2009 which will identify specific objectives and targets and link these to budgetary allocations and to individual committees or officers.

Comments please to Peter Smith: peter.smith@mpa.n-i.nhs.uk . A summary of comments received will be posted on the website.

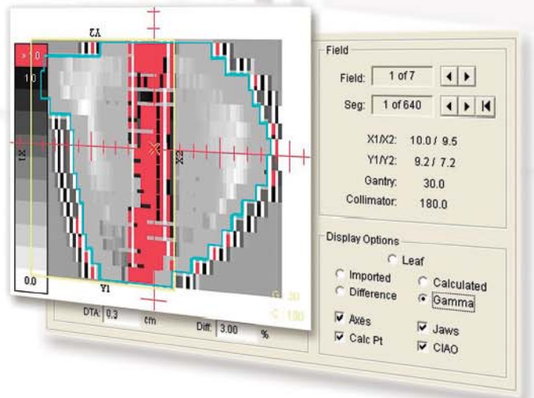
# Nothing else **compares.**

## Comparative IMRT QA.

**It's what distinguishes IMSureQA™ software.**

Using advanced tools, you can compare calculated fluence from IMSure with the predicted fluence from your treatment planning system. From the patented "3-Source Algorithm" you'll see a quick, visual comparison that shows you where any differences may exist. It's fast and easy standard plan MU checks, accurate IMRT checks, and in-depth IMRT patient QA – no film, no phantom, no linac time required. IMSure QA saves time letting you treat more patients. It's that simple.

And that valuable. Dose verification in seconds, not hours.




*Gamma map comparison showing how the TPS failed to accurately model a split field treatment plan*

FAST, ACCURATE **MU** & **IMRT QA.**

**IMSureQA™ Software**

The comparative solution for MU and IMRT dose verification.

**imsure.standardimaging.com**

*Assurance is confidence™*

**800-261-4446**
**608-831-0025**

STANDARD IMAGING

1257-20, 06-05

# The Power to See the Difference

## 4D Adaptive™ IGRT Only From Elekta

Elekta Synergy® takes radiotherapy to the next level in accuracy and effectiveness by integrating imaging into the world's first digitally controlled linear accelerator specifically designed for IGRT. With the 4D Adaptive™ IGRT capabilities of Elekta Synergy®, you can give patients new hope in their battle against serious disease with weapons to treat cancer more aggressively.

### Clinical Flexibility – Elekta Synergy® Imaging Options

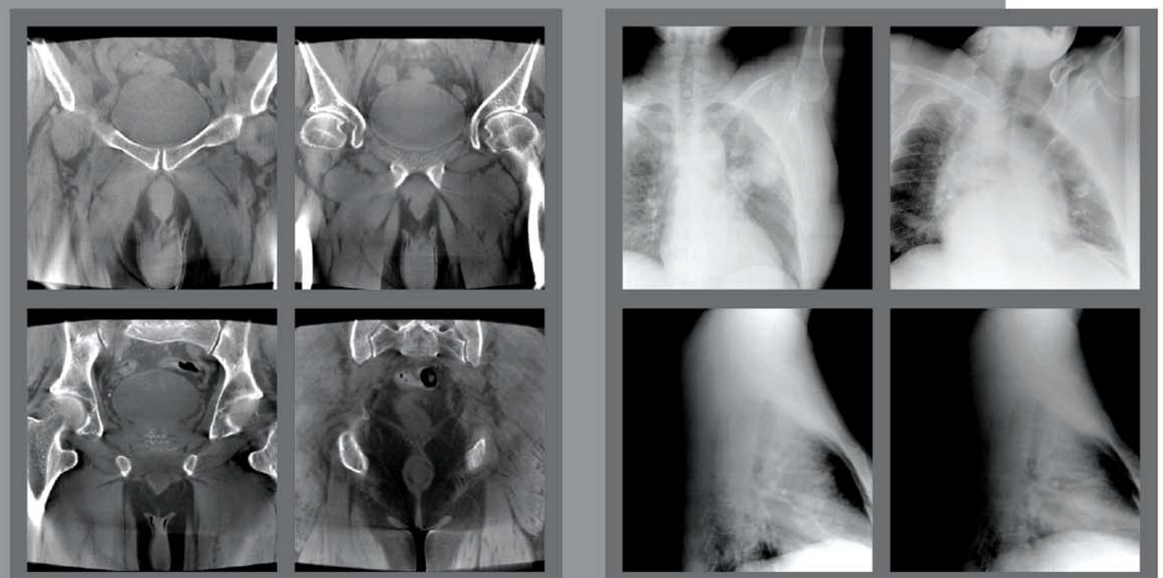
With a comprehensive range of imaging capabilities, Elekta Synergy® allows you to meet the real-world clinical needs of your center by selecting the most appropriate option for your patient.

VolumeView™

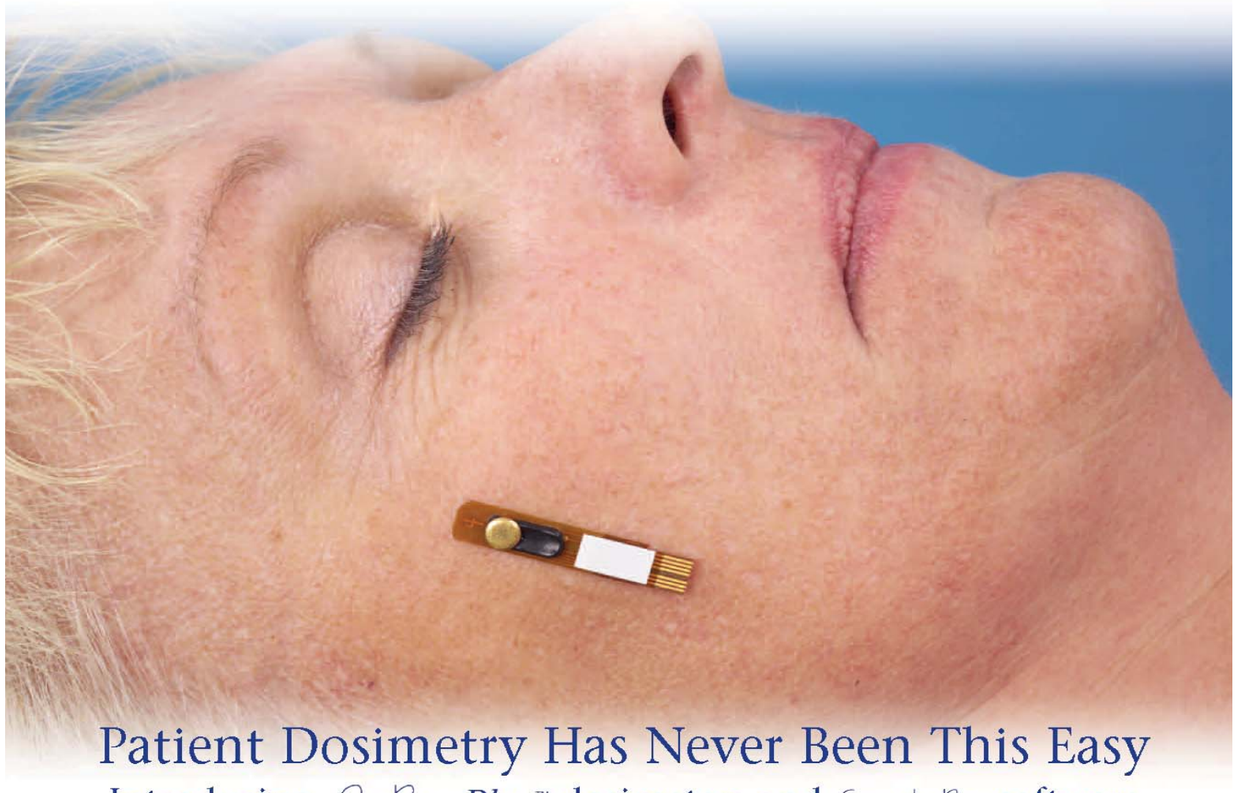
Elekta Synergy® VolumeView™ acquires a complete 3D volume with CT-like contrast in a single one-minute revolution at the time and place of treatment. The submillimeter isotropic resolution and ability to capture detailed information on soft tissues and organs without surrogate implanted markers gives clinicians tools to successfully address interfraction motion and organ deformation.

Other Elekta Synergy® imaging options include:

- MotionView™ - Fluoroscopy imaging before or during treatment to monitor movement of critical structures.
- PlanarView™ - Simple 2D imaging of bony or implanted structures.

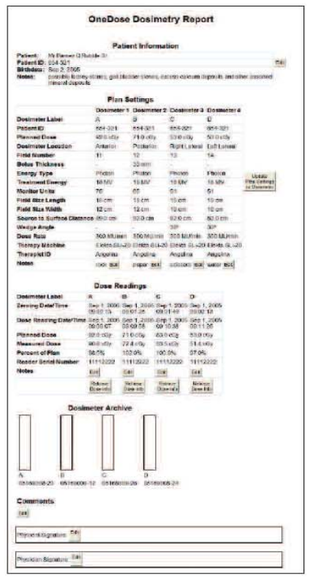


ELEKTA



# Patient Dosimetry Has Never Been This Easy

## Introducing *OneDosePlus*™ dosimeters and *Console Pro* software


OneDose Dosimetry Report

Patient Information

Plan Settings

Dose Readings

Dosimeter Archive

Comments

Sample Reimbursement Report, Console Pro Software

MEDTEC is pleased to introduce two new OneDose™ features, designed to enhance the OneDose wireless patient dosimetry system with advanced dosimeters and efficient reporting software.

- OneDose***Plus*** self-adhesive dosimeters allow you to measure dose at $d_{max}$ without adding buildup. The enhanced dosimeters feature an integrated cap to achieve full buildup.

- Console Pro software works alongside your original OneDose reader system to provide advanced reporting functions with ease.

Contact your account representative to schedule a hands-on demonstration of OneDose***Plus*** and Console Pro software.

medtec®
The Science of Life for the Art of Living™

800.842.8688 / 712.737.8688 / www.medtec.com

# Errors in Radiation Therapy - *E. Ishmael Parsai, Ph.D., MPW Editor*

Many of the readers recall that it was just a few years ago where we did most of our dose computations using a calculator and a piece of paper. The most complex part of data acquisition for treatment planning systems was to realize and accurately measure the primary and scatter from beam modifying devices such as a half beam block. Complexity in data acquisition and beam modeling in today's treatment planings has evolved significantly and has increased by many folds. Commensurate to the increase in the number of parameters involved in delivery of radiation dose with more recent techniques which generally implement IMRT, IGRT, R&V systems, and inverse planning, special attention is given to reducing the overall error in target localization, patient immobility during the treatment, significant protection of normal surrounding tissues, and accuracy in dose computation. The statistics in recorded errors committed in medicine in United States alone, are mind boggling.

An estimated number between 46,000 and over 100,000 deaths occurs each year as a result of medical errors. This number exceeds the annual death rates from auto accidents, breast cancer, and AIDS combined and is costing this nation approximately $38 billion per year.

It is estimated that a large portion of this amount, $17 billion, is associated with preventable errors. This is significant enough that the federal government under President Clinton decided to take steps in reducing medical errors. They announced formation of a task force to make recommendations to improve the quality of health care and increase patient-safety efforts in this country. Subsequently, in April 2001 a Patient Safety Task Force was formed whose charge was to reduce medical errors by 50% within the next five years. In spite all these efforts, medical errors continue to occur in all fields of medicine, including radiation therapy. New imaging technology, record and verify systems, and treatment planning technology allow for more complex treatments, but they bring with them the risk that radiation therapy community will come to rely on technology too much.

Radiation therapy errors can affect single patients or large groups of patients and can be directly or indirectly fatal (when treatments fail to cure the patient). They are also 100% preventable. Errors in radiation therapy can result from human error, a lack of knowledge about how to perform a procedure, failure to follow proper procedures, and even following proper procedures mechanically and not being aware of something going wrong. Other causes of errors include a lack of adequate policies and procedures, inadequate training of personnel, the lack of a safety culture in the treatment facility, poor communication among staff, and lack of proper documentation. ISO Standards the International Organization for Standardization (ISO) has developed internationally accepted standards for quality management that are used in industry and increasingly applied to health care. The standards involve systemic, management, resource, realization, and remedial requirements. The ISO standards require that facilities have a documented quality assurance system in place, that management assumes responsibility and accountability for maintaining this system, that there are sufficient resources to deliver the necessary service, and that the service delivers what it was intended to deliver, when it was intended to do so. The underlying principle of the ISO standards is to identify and satisfy customer needs and requirements. The specific requirements are:

- Systemic requirements. Establish, implement, or improve a quality assurance system. Document the system. Identify and document procedures and processes. Control the documents and maintain records.
- Management requirements. Promote the importance of quality. Meet customer, regulatory, and statutory requirements. Satisfy customers.
- Resource requirements. Identify and provide the necessary resources to perform the service. Provide high-quality personnel. Provide a performance quality infrastructure. Provide a high-quality work environment. In addition, make sure the personnel performing the service have the right experience, education, training, and skills to do the job well. Define acceptable levels of competence. Identify training needs. Provide and evaluate training programs.
- Realization requirements. Does your service do what it is intended to do? Is your service delivered as it is intended to be delivered? Does your service meet customer requirements?
- Remedial requirements. Monitor and measure the quality of customer satisfaction, internal audits, and your procedures and processes. Investigate any procedures or processes that fall outside the norm and correct them.

***How to Prevent Errors***

It is generally accepted that human error is unavoidable and will occur, specially in a busy clinic. However, by implementing appropriate QA procedures, one can totally eliminate large errors and gradually reduce the minor errors to a minimum. It is the large errors such as miscalculations, the use of data for the wrong treatment unit, the incorrect decay of the radioactive source, the overlap or underlap of the treatment fields that result in mis-administered doses to the patient. The radiological Physics Center (RPC) of M.D. Anderson Houston, Texas reported a few years ago, deviations in dose delivered to patients in the range of 15% - 400% different from those intended.
Several types of errors may occur in radiation therapy: deviations from a prescribed treatment plan which can be random, affecting only single fields or fractions during a course of treatment, or systemic deviations may occur which can affect one patient for several fractions or many patients for many fractions. In some cases, treatment errors can be corrected in subsequent treatments; in others, they cannot. Errors can be clinically insignificant, meaning that there is no adverse clinical outcome because of the error, or they can be clinically significant, meaning that they result in adverse complications, which are acute or chronic, or result in bad outcomes, such as failure to achieve local tumor control.

To prevent individual errors in radiation therapy, administrators should first acknowledge that individuals will always make mistakes. Therefore, administrators must employ people with excellent skills; promote excellent written and verbal communication among staff members, patients, and physicians; identify learning and training needs among the staff; make sure all incidents or errors are reported; and ensure the staff is aware of adverse incidents or errors. Clinics should focus their continuous quality improvement (CQI) efforts on errors that have high occurrence frequency and/or errors with high dosimetric impact and longevity and devise solutions to minimize such errors.

Following is a partial list of some important practical items to be considered for reducing the error in dose delivery to below an acceptable margin:

- Redundancy should be regarded as a virtue and not as a mark of inefficiency.
- Computer calculations should be regarded with suspicion.
- Perform weekly chart check for accumulating dose, etc.
- Check the accelerator parameters according to TG-40 of the AAPM or similar documents published by ICRU on a daily, monthly and annual basis.
- Check the exposure rate or output dose rate of a machine after each alteration or repair.
- Check for organs that may be overdosed. The overlap of treatment fields is not always obvious.
- Verify barometer pressure by more than one technique.
- Review accumulated daily data and look for unusual trends.
- Employ an external method to verify the absorbed dose rate implemented in the clinic.
- Periodically verify patient dose using in-vivo techniques.


*References:*

*1. Klein, E.E., et al.: Errors in radiation oncology: A study in pathways and dosimetric impact, Journal of Applied Clinical Medical Physics, Vol. 6, No. 3, Summer 2005; 81-94.*

*2. French, J., Treatment Errors in Radiation Therapy, Radiation Therapist, Fall 2002, Vol 11, No 2; 149-159.*

*3. Brennan TA, Leape LL, Laird NM, Hebert L, et al. Incidence of adverse events and negligence in hospitalized patients. N Engl J Med. 1991;324:370-376.*

*3. Leape LL, Lawthers AG, Brennan TA, Johnson WG. Preventing medical injury. QRB Qual Rev Bull. 1993;19:144-149.*

*4. Wilson RM, Runciman WB, Gibberd RW, Harrison BT, Newby L, Hamilton JD. The Quality in Australian Health Care Study. Med J Aust. 1996;163:458-471.*




# AAPM/IOMP International Scientific Exchange Program Regional Course &Workshop: Current Practices And Advances In Radiation Therapy Physics; Manila, Philippines. August 1-5, 2005 –

*By: Saiyid M. Shah, Ph.D. Course Director*

The 14th AAPM / IOMP International Scientific Exchange Program course and workshop in radiation therapy physics was held successfully in Manila, Philippines, August 1-5, 2005. This program was co-sponsored by the Philippines Organization of Medical Physicists (POMP) as host organization.

The objectives of this course/workshop were to update the knowledge of medical physics, to present advanced radiation therapy physics to clinical physicists, to inter compare calibration of photons beams using IAEA and AAPM TG-51 protocols, to exchange information concerning medical physics profession in Philippines and nearby countries. Even though this course/workshop was intended for medical physicists, but some radiation oncologists, dosimetrists and radiation therapists also attended. A total number of 73 participants were registered including one dosimetrist from Singapore and one medical physicist from Korea. Basically almost all the medical physicists in Philippines were able to attend this program.

Mr. Gil Palcone, President of POMP was the Host Director and Co-Director of this program. Ms. Agnette Peralta, Director Bureau of Health Devices and Technology, Philippines and Mr. Raffy Solis from St. Luke Medical Center, also helped in organization and planning of this program. The AAPM faculty were: Drs. Faiz M. Khan, Azam Niroomand-Rad, Ceferino H. Obcemea, Bhudatt R. Paliwal, Saiyid M. Shah, and Raymond K. Wu. The program began with a welcoming address by Celia Anatalio, MD, Assistant Director of Elicano Cancer Clinic, also known as the "Mother of Medical Physics in Philippines". The program ended with presentation of Certificates of Participation and Certificates of Appreciation to the participants and faculty.

Evaluation forms were distributed to the participants and were collected upon completion of the program. Various aspects of the program including the quality and the quantity of the lectures as presented by each faculty during the course/ workshop were evaluated. General comments were noted by some of the respondents at the end of the evaluation form. As noted, faculty did a great job and this program provided a unique opportunity to the participants to interact with the faculty and benefit from their experiences. The participants had ample opportunity to ask questions even after the scheduled times. The results of the evaluation were summarized and distributed to the faculty and ISEP / IAC members.


The local expenses of the faculty were supported by the Host Institution and their travel expenses were financed by funds provided by the AAPM, and vendors: Advance Radiation measurements, Assurance Controls Technologies Co., Brain Lab, Best Industries, Computerized Radiation Scanners, Elekta, Global Medical Solutions, Integrated Energy Systems and Resources, MDS Nordion, PTW, Scanditronix/Wellhofer, Siemens, Sun Nuclear and Varian. The Corporate Sponsors were offered a tabletop space for exhibition of their products in a room adjacent to the lecture hall. We are grateful to these companies for their generous contributions. The local expenses of this program were supported by POMP, Philippines Bureau of Health Devices and Technology, IOMP, North American Chinese Medical Physicists Association (NACMPA), and local vendors. This program was not possible without the supports of these organizations and vendors. We would like to express special thanks for their generous contributions.

We also wish to acknowledge the commitment and effort of Ms. Agnette Peralta**,** Mr**.** Gil Palcone, POMP President, Ms. Josephyn Limbo, POMP Treasurer, and all other staff of Local Organizing Committee who worked very hard in the past few years to organize and implement this program. They did a great job and local arrangements (including companion programs) were superb. Their hospitality was extraordinary. Unforgettable friendships were made possible among the faculty and the participants. We also like to thank the AAPM faculty for volunteering their time and efforts in this endeavor.


Lastly, it is worth noting that there are several state of the art radiation treatment centers in Philippines and that every radiation treatment center is required by law to hire at least one medical physicist. This achievement is largely due to active efforts and leadership of Ms. Agnette Peralta as Director of the Philippines Bureau of Health Devices and Technology.

# Donation of Used Equipment –

## PRC Report for July - December 2005

*Mohammed K. Zaidi, Program Manager, IOMP Professional Relations Committee*

Fred Asprinio, Jupiter Medical Center, Radiation Oncology, Jupiter, FL, USA has very generously offered 3 units of Nuclear Associates 37-720 electrometer (dual channel) for diode measurements, Sun Nuclear PDM, patient dose monitor for diodes (4 channel), Victoreen 471 survey meter, needs repair, Holaday microwave survey meter, model HI-1600 and Lumisys 75 film scanner. This equipment donation from Jupiter Medical Center, Radiation Oncology were shipped to me as Mr. Asprinio objected my decision to let them go to Idaho State University. He indicated that the instruments being donated are very useful and should not end up in a museum. He also paid for the shipping expenses. Giving much value to his thoughts of helping developing nations, I am planning to ship one electrometer 37-720 to University of Perpetual Help Rizal Medical Center, Alabang-Zapote Road, Las Pinas City, Philippines, Norberto A. Abella Jr. Medical Physicist, Radiology Department. I am locating suitable home for the remaining equipment and then will ship them.

Varian Ximatron Simulator with x-ray and fluoro capabilities being donated by Mayo Clinic to the Institute of Radiotherapy & Nuclear Medicine (IRNUM), University of Peshawar, Peshawar Pakistan. Dr. Ayub Khan is the Director of IRNUM. We are thankful for the efforts of Dr. Walter Tang and Patty Pickett of Mayo Clinic for this donation and help in making the arrangements for shipment.

Michael Taylor, Medical Physicist, Inova Fairfax Hospital, Falls Church, VA, USA has very kindly donated a CMS dynascan water tank with spare parts and is being shipped to Nargis Dutt Memorial Cancer Hospital, Barsi, Sholapur District, Maharastra State, India. Dr. B.M.Nene, MD is the Director and Macherla Subash Medical Physicist for this center.

Mike Bieda, Medical Physicist, Bryn Mawr Hospital, Bryn Mawr, PA, USA very kindly donated a used Fletcher-suit applicator set and was also shipped to Nargis Dutt Memorial Cancer Hospital, India. The shipping expenses were also paid by Mr. Bieda.

The IOMP Used Equipment Donation Program Manager is thankful to our friends - Fred Asprinio, Walter Tang, Patty Pickett, Michael Taylor and Mike Bieda for the donation of used equipment and arranging the shipments.

**USED EQUIPMENT NEEDED:**

Treatment planning systems, linear accelerator, Theratronic 780 Co-60, Automatic film processor, block cutter, patient dose monitor and ultrasound machine. A clinic in India is requesting for a HDR unit – if you want to donate one, please contact.

**SHIPPING ARRANGEMENTS:**

The institutions need used equipment should mention in their response that they would 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 used equipment from generous donors to those who need them badly. He can be reached at Department of Nuclear Medicine, SGPGIMS, Raebarelli Road, Lucknow (UP), 226014, INDIA. His phone number is 91-0522-2668700 extension 2615 and email address is akshukla@sgpgi.ac.in.

The equipment donated to IOMP Used Equipment Donation Program is generally in good working condition but we don't guarantee its usefulness. The donation of used equipment to IOMP are sometime tax deductible. IOMP will not responsible for any warehousing expenses or loss if the used equipment donated couldn't be shipped.

Our webpages has a space for used equipment program. Please visit, I will be able to post a list of available used equipment but most of it comes to me at a very short notice, so it may not be there. A list of donated equipment will also be posted.

If you want to donate or want some used equipment donated to your organization, please contact Mohammed K. Zaidi, Professional Relations Committee at our website www.iomp.org.

# Editor's Corner – *(continued from page 8)*

article concludes that "Stereotactic body radiation therapy is proving to be a safe and effective way to treat early stage lung cancer in medically inoperable patients". "This treatment may become standard treatment for frail patients and an alternative to lobectomy for other patients who do not have the medical complications."

**Men Continue to Have Normal Life after Radiation for Prostate Cancer**

Men receiving radiation therapy to combat early-stage prostate cancer are still able to achieve an erection and face a low rate of incontinence one year following treatment, according to a new study published by Feigenberg, et. al, in the July 15, 2005 issue of the International Journal of Radiation Oncology Biology Physics. Researchers enrolled 98 men from 24 institutions and set out to gauge the health-related quality of life in patients receiving low-dose rate prostate brachytherapy where radioactive seed are implanted directly into the prostate gland to battle the cancer. Patients were given three separate health-related quality of life questionnaires a total of five times before, during and after undergoing radiation therapy to allow researchers to evaluate what effect their treatment was having on them. The two most important side effects studied were sexual and urinary function. The study reports that one year after receiving treatment, 78% of the men were able to achieve an erection, both with and without assistance. However, nearly 50% of the men did experience some loss of sexual function, such as reduced desire, activity and satisfaction as well as fatigue. Although the overall rate of incontinence was low at 1%, some men did have difficulty urinating at the one-year mark. Typically, incontinence increases at the beginning of treatment and is completely gone one year after treatment. This is the first multi-institutional study of its kind initiated at Fox Chance Cancer Center in Philadelphia. The authors indicate that "This study has provided us with valuable data that will help radiation oncologists better address possible side effects patients may have after receiving seed implants for prostate cancer."

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

**Small Breast Lesions Detected By Molecular Gamma Imaging**

Mayo Clinic, Rochester, MN, USA researchers used a specially designed gamma camera for breast imaging to identify small malignant breast lesions even in dense breast tissues. Approximately 25 to 40 percent of women have dense breast tissues. As an anatomic imaging technique, mammography relies on differences in tumors appearances vs. normal tissue. In dense-breasted women, these anatomic differences aren't as apparent, which decreases the chance that a cancer will be visible on the mammogram. This group recognized that screening for breast cancer with mammogram might not be sufficient in some groups of women. This technique should aid in the detection of early-stage breast cancer that was not possible with conventional gamma cameras. The research results suggest an important role for molecular breast imaging in filling this critical gap. Molecular technique relies on differences in the metabolic behavior of tumor vs. normal breast tissues, lesion size-rather than breast tissues density-has been the confounding factor in this technique. Molecular gamma imaging detected four cancers that weren't seen on a mammogram. Their technique yielded highest sensitivity yet reported for a gamma camera in detecting small lesion of less than 1 cm. [Collins, Douglas, O'Connor, Michael, Rhodes, Deborah, Advance, 2005, Vol 15/3, 13].

**BREAST CANCER:**

Girl's growth rate during adolescence and even in the womb may impact breast cancer risk later in their life as proved in a Denmark study of 117,000 women. It indicates that those who were chubby at birth but tall and lean at 14 were more likely to develop the disease. It mentions of the differences in levels of hormones that influence growth and genetic variations that dictate people's size. Most of the studies on women show that tall ones have an increased risk of breast cancer, that heavy ones have a higher risk of the disease after menopause, and that lean ones have a higher risk before menopause and a reduced risk after. Babies who weighed 8.8 pounds at birth had a 17 percent higher risk of later breast cancer than ones who were only 5.5 pounds. Each additional 2 pounds over 5.5 boosted risk by 10%. The lower a girl's body mass index at age 14, the higher her risk of breast cancer, echoing findings about the risk in pre-menopausal women. Also it was noted that the younger a girl has her peak growth period, the higher her risk of later breast cancer [Melbye, Mads, NEJM, 2005, ISJ, 2005, 9/14/2005].

Low-fat diet also cuts risk of breast cancer recurrence by selecting a strict diet plan reducing the fat to 30 grams a day by choosing less fatty alternatives in their daily meals. The doctors had always pushed good nutrition as a way toward off cancer in the first place, this study shows that a low-fat approach might aid in keeping the disease from returning [Morgan, R.J. 2005, ASCO 2005, ISJ, 5/18/2005].

Indiana University group is using fish oil to develop a new breast cancer drug. Omega-3 fatty acids found in fish, such as tuna, herring, sardines and mackerel are mixed with anesthetic propofol. The researcher found that the mixture reduced the spread of cancer cell by 50% and tumor growth by 30% [Breast Cancer Research. Vol 7 No 5, 645-652].

**NEW DEVISE RAISES PRIVACY CONCERNS:**

**VERI-CHIP** – a tiny implantable computer chip, about the size of a grain of rice, approved by the US Food and Drug Administration for implantation in a patient's arm can speed vital information about a patient's medical history to doctors and hospitals. It could also open new ways to imperil the confidentiality of medical records. It can be inserted with the pinch of a syringe under the skin in a procedure that takes less than 20 minutes and leaves no stitches. The chip stores a code that releases patient-specific information when a scanner passes over it. The chip contains no medical records, just codes that can be scanned, and revealed, in a doctor's office or hospital. This code, the health provider can unlock that portion of a secure database that holds that person's medical information, including allergies and prior treatment. The electronic database would be updated with each medical visit. It has been implanted in more than a million pets. Now the chips possible dual role-tracking people's movements – as well as speeding delivery of their medical information to emergency rooms – have raised alarms [ISJ, 2005, 9/14/2005].

**WARNING LABELS OF POTATOES:**

Acrylamide, a chemical, previously considered an industrial agent until 2002 study that it occurred naturally in many carbohydrates-rich foods. It occurs in cereals and also at high levels in potatoes. It was linked to cancer in animals in a study conducted by World Health Organization. Most of the fresh potatoes grown in Idaho are grown under contract to fryers, as they are mostly used as French fries. Here in the USA, the lawmakers will likely recommend to include specific warning about food-based acrylamide [ISJ, 5/19/2005].

**IAEA ROLE IN SETTING UP RADITHERAPHY CENTERS IN SA COUNTRIES:**

International Atomic Energy Agency (IAEA) has approved and funded several projects to help establish nuclear medicine and biophysics center in Almaty, Kazakhstan, upgrade radiotherapy and nuclear medicine services for the treatment of cancer patients at the Republic Clinical Center of Oncology (RCCO), Dushanbe, Tajikistan, upgrade nuclear medicine and capability for the treatment of cancer patients, Tashkent, Uzbekistan; improve the effectiveness of radiotherapy services in the treatment of cancer, Tbilisi, Georgia and to reinforce radiation oncology services at the National Oncology Centre (NOC) - Radioisotopes and Radiation Treatment, Baku, Azerbaijan [www-te.iaea.org/tcweb/projectinfo/projectinfo_body.asp-].



# 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 for inclusion in MPW. Deadlines for MPW are April 1 and October 1 for issues that are mailed several weeks later.

**23-25 February 2006**
18th Annual Int'l Brachytherapy Workshops and Symposium; Long Beach, CA USA
ksheikh@memorialcare.org

**27 Feb - 1 Mar 2006**
15th Singapore LIVE (Live Interventions in Vascular Endotherapy); Singapore
http://www.singlivecourse.com
contact@singlivecourse.com

**27 Feb - 2 March 2006**
Biological Effects of Low Dose of Ionizing Radiation and Radioactive Contamination of the Environment (BIORAD-2006); Syktyvkar, Russia http://ib.komisc.ru/biorad/en/index.htm
guryev@ib.komisc.ru

**7-9 March 2006**
First Radiological Device and Nuclear Event Symposium; Richmond, VA USA
http://www.radandnuke.com
jroehl@scentczar.com

**10-12 April 2006**
9th International Workshop on Electronic Portal Imaging (EPI2K6); Melbourne, Australia
http://www.epi2k6.org.au/
epi2k6@wbrc.org.au

**10-12 May 2006**
American Brachytherapy Society Annual Meeting; Philadelphia, PA USA
http://www.americanbrachytherapy.org
rguggolz@drohanmgmt.com

**18-22 June 2006**
AAPM Summer School; Windsor, ON Canada "Integrating New Technologies into the Clinic: Monte Carlo and Image Guided Radiation Therapy"
http://aapm.org / karen@aapm.org

**28 June - 1 July 2006**
CARS 2006: Computer Assisted Radiology and Surgery; Osaka, Japan
http://www.cars-int.org
office@cars-int.org

**30 July - 3 Aug 2006**
American Association of Physicists in Medicine Annual Meeting; Orlando, FL USA
aapm@aapm.org http://aapm.org/meetings/

**27 Aug - 1 Sept 2006**
World Congress of Medical Physics and Biomedical Engineering; Seoul, South Korea
http://www.wc2006-seoul.org
wc2006@koconex.com

**9-13 October 2006**
12th Int'l Congress on Neutron Capture Therapy; Kagawa, Japan
http://icnct-12.umin.jp/ ICNCT2006@antm.or.jp

**5-9 November 2006**
American Society for Therapeutic Radiology and Oncology Annual Meeting; Philadelphia, PA USA
http://astro.org

## Southeast Asian Federation of Organizations for Medical Physics (SEAFOMP)– *Prof Kwan-Hoong Ng, President SEAFOMP; Oct. 10, 2005*

After the successful 3rd SEACOMP/ 4th AOCMP held in Kuala Lumpur (October 2004), SEAFOMP continues to be active in promoting the growth of medical physics in the region.

A new web site was developed and maintained by Mr. Yak-Koon Tay of Singapore http://www.geocities.com/seafomp1//SEAFOMP.html

In an effort to encourage more research activities and greater visibility, SEAFOMP has endorsed the open access peer-reviewed e-journal 'Biomedical Imaging and Intervention Journal" www.biij.org as their official publication.

# Status AAPM/IOMP Libraries Oct. 2005 –

*Allan Wilkinson, Ph.D, IOMP Curator of Libraries*

We currently have 69 active libraries in 42 countries (see list below). Active status is maintained by returning an update questionnaire every 2 years. Almost all of the communications between the program curator and the libraries have been converted to electronic format. During 2005, we have reactivated libraries in the Philippines and in Chiang Mai, Thailand. The next reactivation efforts will be directed towards Latin America, with the assistance of the International Affairs Committee of the AAPM. In the past year there have been 8 private donations of journals/books/reports to Brazil, Cameroons, Costa Rica, India, Pakistan, Philippines, Thailand, and Turkey. In addition, 68 AAPM members donated their 2005 *Medical Physics* subscriptions to the Library Program. Also, each quarter, The Society for Radiological Protection mails their quarterly publication, *The Journal of Radiological Protection*, to all active libraries.

**ACTIVE LIBRARIES**

Algeria, Argentina, Brazil, Brunei, Bulgaria, Cameroons, China, Columbia, Costa Rica, Cyprus, Domincan Republic, Ecuador, Egypt, Estonia, Georgia, Hungary, India, Iran, Jamaica, Kenya, Lebanon, Mexico, Morocco, Myanmar, Namibia, Nepal, Nicaragua, Nigeria, Pakistan, Peru, Philippines, Poland, Russia, Sudan, Tanzania, Thailand, Tunisia, Turkey, Ukraine, Vietnam, Zambia, Zimbabwe.

## Special Issue on e-Learning in Medical Engineering and Physics –

*Slavik Tabakov, Ph.D., Chairman IOMP-ETC*

The nature of Medical Physics provides excellent background for application of e-Learning (e-L). The Special Issue of the Journal of Medical Engineering and Physics (vol. 27, No.7, September 2005, Publisher Elsevier), guest-edited by S Tabakov, includes 12 papers describing various e-L activities. In general, e-L in Medical Engineering and Physics is applied at several layers - from building specific simulations, to interactive Web sites. Each layer applies different methodology for development and requires various skills and resources. These versatile e-L methods use different paedagogical approaches. This first issue on the subject aims to collect e-L activities, which will be used as a source for supporting our professional education/training around the world and will encourage development of other such programs. The papers in the Special Issue are arranged in order from building separate modules to Training courses and whole MSc programmes. The content of the issue is as follows:

- Development and Evaluation of an ODL course on Medical Image Processing, N. Pallikarakis, Greece
- A simulation tool to support teaching and learning the operation of X-ray imaging systems, V Fanti, R Marzeddu, G Massazza, P Randaccio, Italy
- E-learning for Assistive Technology Professionals – a Review of the TELEMATE Project, A Turner-Smith, UK
- A case study of successful e-learning: A web-based distance course in medical physics held for school teachers of the upper secondary level, B-A Jönsson, Sweden
- Demystifying Biomedical Signals: A Student Centred Approach to Learning Signal Processing , D.M. Simpson, A. De Stefano, R. Allen, M.E. Lutman, UK
- Development of educational image databases and e-books for medical physics training, S Tabakov, V C Roberts, B-A Jonsson, M Ljungberg, C A Lewis, R. Wirestam, S-E Strand, I-L Lamm, F Milano, A. Simmons, C. Deane, D Goss, V Aitken, A. Noel, J-Y Giraud, S Sherriff, P Smith, G Clarke, M Almqvist. T Jansson, International Consortium (UK, France, Italy, Sweden)
- A Research Program in Medical Physics for Remote Students, J Pollard, Adelaide, Australia
- E-learning system ERM for medical radiation physics/engineering education, M. Stoeva, A Cvetkov, Bulgaria
- KISS – a new approach to self controlled e-learning of selected chapters in Medical Engineering and other fields at bachelor and master course level, H Hutten, W Stiegmaier, G Rauchegger, Graz, Austria
- Challenge Based Instruction in Biomedical Engineering: A Scalable Method to Increase the Efficiency and Effectiveness of Teaching and Learning in Biomedical Engineering, T R Harris, S P Brophy, Vanderbilt University, USA
- Re-engineering The Process of Medical Imaging Physics and Technology Education and Training, P Sprawls, Emory University, Atlanta, USA
- Evaluation of the e-Learning material developed by EMERALD and EMIT for Diagnostic Imaging and Radiotherapy, V Aitken, S Tabakov, UK

Medical Physics was among the first professions to develop and apply e-L. An indicator for this is the first international prize in the field (EU Leonardo da Vinci Award) presented to EMIT Consortium. The results so far present a solid background and show a perspective for development. Medical Physics and Engineering needs special forum to discuss regularly these questions and exchange expertise. This would be of prime importance for the growth of our quickly expanding profession.

## Report from the Education & Training Committee –

*Slavik Tabakov, PhD, Chairman IOMP - ETC*

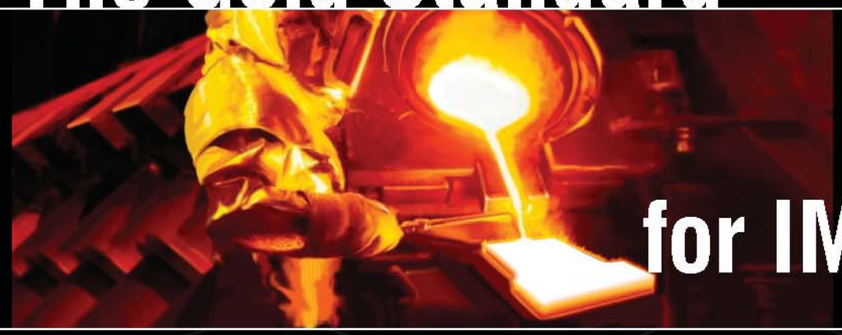
During the period March 2005 - October 2005 the IOMP Education and Training Committee supported an activity in Africa (Cameroon) – the– one week training course on medical physics, radiation therapy, nuclear medicine, diagnostic and medical imaging, and radiation safety. This activity will also help the professional development n the Region and forming new Medical Physics Societies. This activity is jointly supported by AAPM and IOMP and is planned for November 2005. Another activity supported was the Satellite seminar:–"Continuing Professional Development of Medical Physicists" in Moscow, Russia. The activity covers Russia and its neighbouring countries (post-Soviet republics). It also included a "Round table" for the deans of faculties of Universities teaching Medical Physics. This activity was completed in August 2005. During the same month another (previously approved) activity a course in in Manila, Philippines was also successfully completed.

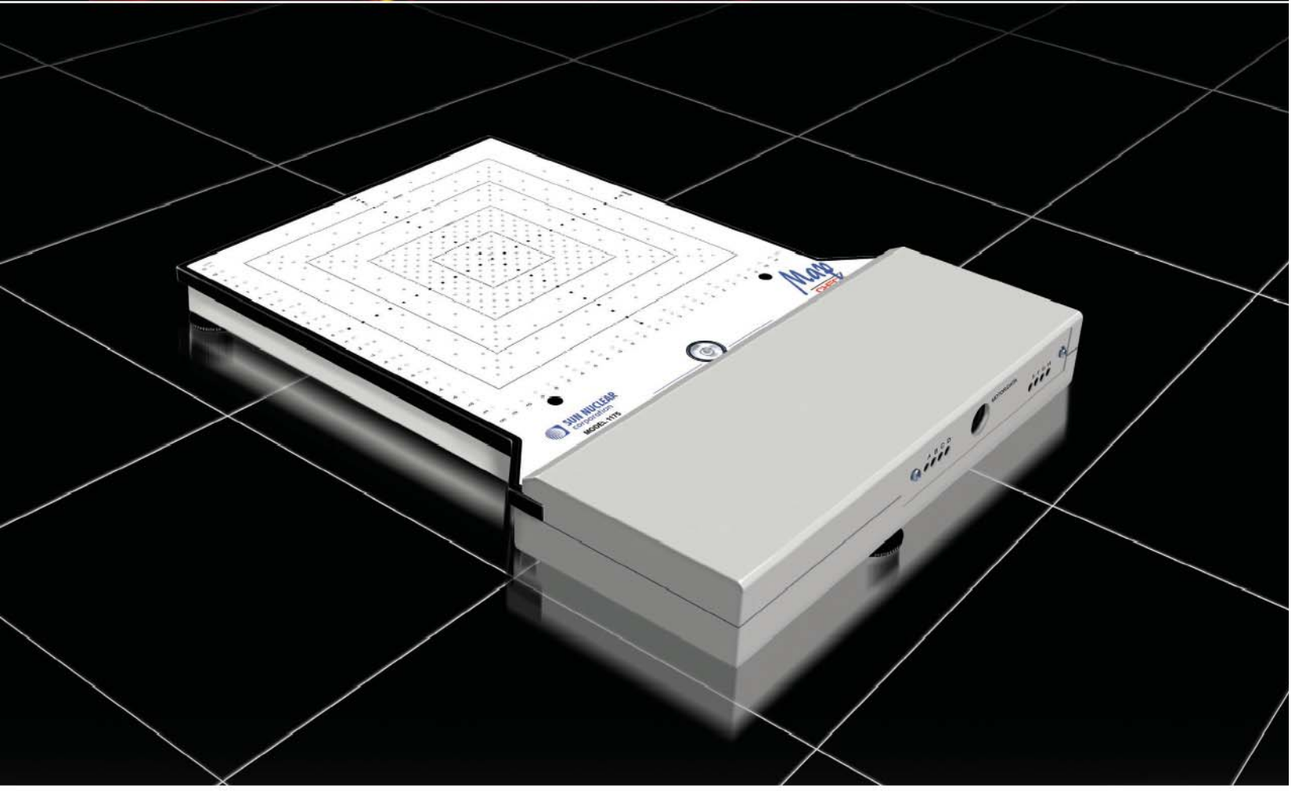
Other important Education and Training activities were the special sessions in Nuremberg and Kyoto (both during September 2005). The activity in Nuremberg (part of the IOMP's 14thInternational Conference of Medical Physics and 9th EFOMP European Congress of Medical Physics ) included three sessions for E&T developments. The activity in Kyoto (part of the 5th Asia-Oceania Congress of Medical Physics and the 4th Japan-Korea Joint Meeting on Medical Physics) included an AFOMP symposium on Training of Medical Physics in Asia Oceania Region. A similar larger activity was planned for the WC2006 in Seoul.

The ETC, together with colleagues from IOMP, developed a project to be submitted at the World Conference on Physics and Sustainable Development in Durban, South Africa (November 2005). This project (Model Curricula for Medical Physics Education) describes the necessary steps in the development of post-graduate (MSc-level) programs and suggests suitable curricula. It also discusses future involvement of IOMP in the validation (and further – accreditation) of such courses through an additional IOMP sub-committee. The project will be described in the next issue of MPW.

Finally, a special issue of the Journal of Medical Engineering and Physics "e-Learning in Medical Engineering and Physics" was just published. It includes 12 papers from various countries. A separate article in this MPW covers this activity.

# The Gold Standard for IMRT QA





Map CHECK

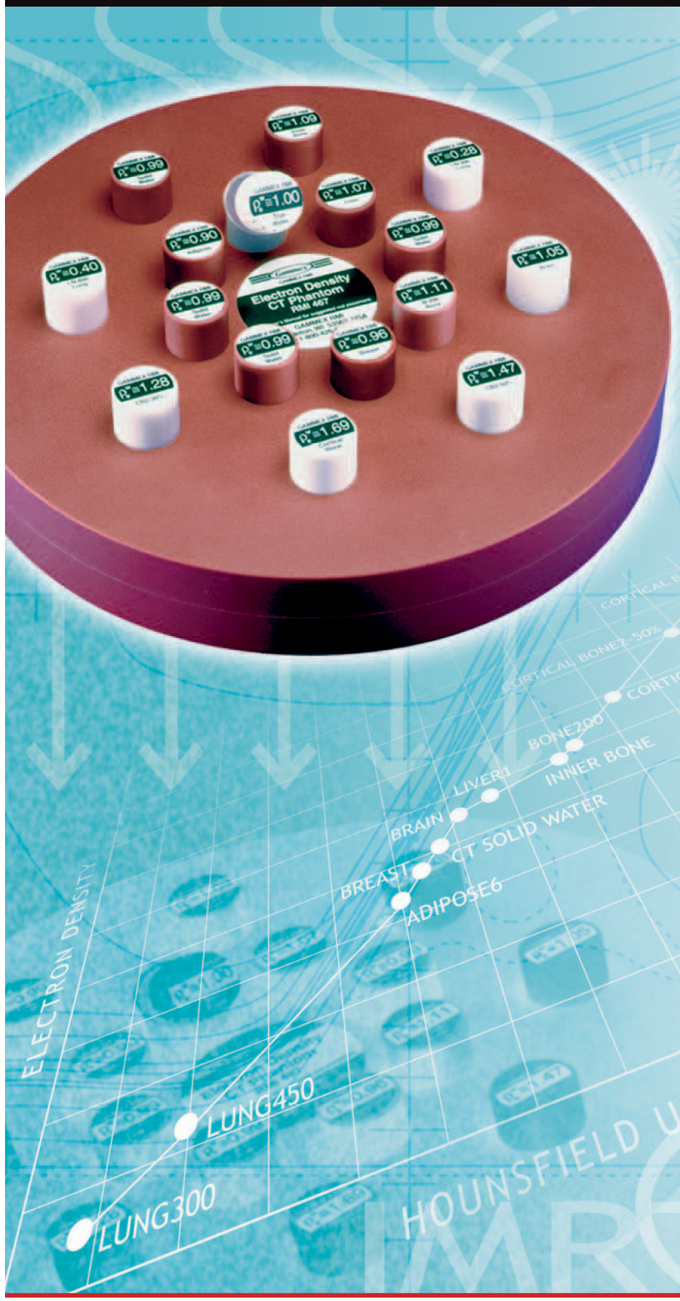
- Smallest available detectors (0.64mm²)
- No frequent recalibration necessary
- Flatness and symmetry QA included

With hundreds of users worldwide and over 3 years of proven success, MapCHECK has truely become the "Gold Standard" for quick and accurate IMRT QA.
Make your IMRT QA easier and more accurate by contacting Sun Nuclear today.

SUN NUCLEAR corporation | *Your Most Valuable QA Tools*

www.sunnuclear.com 321-259-6862

GAMMEX rmi.




## DO YOU SEE WHAT WE SEE?

**YOU MAY THINK YOU'RE LOOKING AT AN ORDINARY TISSUE CHARACTERIZATION PHANTOM, BUT GAMMEX IS READY TO SHOW YOU THERE IS MUCH MORE TO THIS PHANTOM THAN MEETS THE EYE.**

The 467 Tissue Characterization Phantom provides a faster and easier method for tissue variation corrections in isodose treatment planning and it allows you to "see" more for reliable dose calculations. It offers a wide range of densities in the bone and tissue rods - but we don't stop there. Because correlation of tissue electron densities with CT number (Hounsfield Units, HU) is necessary for reliable dose calculation, data obtained using the phantom can easily be transferred to your treatment planning system to correct for tissue inhomogeneities.

We also provided an innovative method for verifying CT scanner distance measurement. An optional Titanium insert rod can expand the range and utility of the phantom even further.

As a result, you get more reliable dose calculations, more tissue characterization in the sample variety and more performance with our Solid Water® base. It's more of what you'd expect from Gammex. For more information on the 467 Tissue Characterization Phantom, contact a Gammex representative today at 1-800-GAMMEX 1 (426-6391).


**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
EMAIL: SALES@GAMMEX.COM

**GAMMEX-RMI LTD**
KARLSRUHE HOUSE
18 QUEENS BRIDGE ROAD
NOTTINGHAM NG2 1NB
ENGLAND
(++44) (0) 115-985-0808
FAX: (++44) (0) 115-985-0344
EMAIL: UKSALES@GAMMEX.COM


Gammex
GAMMEX rmi.
WWW.GAMMEX.COM
GAMMEX LASERS®