

# COLLEGE ON MEDICAL PHYSICS

**30 August - 22 September 2004**

The Abdus Salam International Centre for Theoretical Physics (ICTP) will conduct a College on Medical Physics from 30 August (Monday) to 22 September (Wednesday), 2004. It will be directed by **Anna BENINI** (University Hospital of Copenhagen-Heart Center, Copenhagen, Denmark), **Perry SPRAWLS** (Emory University, Atlanta, U.S.A.) and **Slavik TABAKOV** (Kings College, London, U.K.). **Luciano BERTOCCHI** (University of Trieste & the Abdus Salam ICTP, Trieste, Italy) will act as Local Co-ordinator. The College will be followed by a Workshop on Medical Applications of Synchrotron Radiation, 23 to 25 September (Thursday to Saturday).

Recent years have witnessed a rapid development and increasing use of medical imaging as a diagnostic tool. Imaging techniques contribute appreciably to the saving of life and alleviation of suffering through effective diagnoses that detect diseases, such as cancer, in the early stages when cure is the most possible. They also help in guiding the treatment and care of most major diseases and injury. Today, the medical profession has a choice from a variety of imaging methods such as: radiography and mammography, fluoroscopy, computed tomography (CT), ultrasound, magnetic resonance imaging (MRI), and imaging procedures using radionuclides including SPECT and PET.

The effective and safe use of these imaging procedures usually require a professional staff of physicians, technologists, and medical physicists with a comprehensive knowledge of the physics and technology of the imaging methods and their applications. The medical physicist has the triple role of providing:

1. Clinical medical physics support services
2. Education for other medical professionals: medical physicists, engineers, physicians, and technologists
3. Research and innovations in the effective utilization of medical imaging technology.

## **Clinical Medical Physics**

In the clinical setting the medical physicist with the appropriate education, training, and experience provides the knowledge and leadership to manage the scientific, technical, and safety aspects of the hospital and clinical medical imaging operations.

### **Specific functions of the medical physicist include:**

- Analysis of clinical imaging requirements, development of specifications and consultation in the selection of imaging equipment for purchase;
- Imaging facility planning, design and development;
- Evaluation and acceptance of newly installed equipment;
- Equipment performance evaluation and maintenance recommendations in the context of quality assurance programmes;
- Contribute to the optimum equipment performance and image quality through consultation and collaboration with other members of the clinical staff;
- Manage patient radiation exposure and dosage in relationship to image quality requirements;
- Manage radiation and magnetic field (MRI) safety programmes for clinical facilities.

## **Medical Physics Education and Training**

As an educator, the functions of the medical physicist include:

- Providing education and training for members of the clinical staff (physicians, radiographers, technologists, etc) on the principles of the imaging methods and optimization of imaging procedures;
- Developing and conducting education and training programmes for medical physicists and biomedical engineers.

## **Research and innovations**

As an effective researcher and innovator, the functions of the medical physicist include:

- Research and development leading to increased utilization and performance of medical imaging as a method for more effective diagnosis in the developing countries;
- Collaboration with physicians and other medical scientists on advances in medical imaging.

## **OBJECTIVE OF THE COLLEGE ON MEDICAL PHYSICS**

The objective of the College on Medical Physics is to contribute to the development of competent medical physicists who can make direct contributions to the improvement of health care in their countries through better medical imaging diagnosis, and who can lead in the proper and safe applications of radiation for diagnostic imaging purposes. The emphasis of the College will be on developing the medical physicist as an *effective educator and trainer*. This is because the greatest impact and contribution to world health is achieved by developing a complete medical staff with the appropriate knowledge to effectively utilize medical imaging technology. The medical physicist, as an educator, is the key to this achievement.

## **PARTICIPATION**

Physicists and scientists with significant responsibility for medical physics education and training from all countries that are members of the UN, UNESCO or IAEA can attend the College on Medical Physics. Participants should hold a university degree in physics, engineering, medical physics or related subjects and have several years of professional experience related to medical physics and/or clinical medical imaging. They are expected to apply acquired knowledge through education and training programme development, teaching and working to improve medical imaging in their home countries. The main purpose of the Centre is to help experienced scientists from developing countries through a programme of training activities within a framework of international cooperation. As this activity will be conducted in English, participants should have an adequate working knowledge of that language.

As a rule, travel and subsistence expenses of the participants should be borne by the home institutions. Limited funds are available for some scientists from developing countries. As scarcity of funds allows travel to be granted only in a few exceptional cases, every effort should be made by candidates to secure support for their fare (or at least half-fare) from their home country. It is stressed that participants whose travel expenses are paid by the ICTP are required to attend the entire College and the subsequent Workshop. There is no registration fee for this activity. A separate announcement will be issued for the Workshop

The closing date for requesting participation is **15 APRIL 2004**. The request for participation form, to be found at the back of the Bulletin (also obtainable from the ICTP WWW Server: <http://agenda.ictp.trieste.it/smr.php?1577>), should be completed, signed and sent to:

**the Abdus Salam ICTP (SMR.1577)  
Strada Costiera 11  
I-34014 Trieste, Italy**

If sending your applications by e-mail, please save and send file attachments in RFT format to:  
[smr1577@ictp.trieste.it](mailto:smr1577@ictp.trieste.it)

The decision of the Organizers will be communicated to all candidates as soon as possible.

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