Clinical Medical Device Management: Specification, Acceptance testing, Commissioning, QC and Advanced applications in Whole-body PET/CT

July 4 – July 6, 2013
Prague, Czech Republic

The Czech Association of Medical Physicists in collaboration with EFOMP and Department of Dosimetry and Application of Ionizing Radiation of Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague would like to invite you to the EFOMP School for Medical Physics Experts - Prague, Summer 2013. The school will be aimed at advanced tasks related to PET/CT - from specification of PET/CT system properties to image reconstruction, fusion and evaluation. This two-and-half day event will be an EFOMP accredited one and is intended for practicing clinical Medical Physicists who want to become a Medical Physics Expert in Nuclear Medicine.

Content

Hardware and software update (State-of-the-art: hardware devices, Physical figures-of-merit for PET/CT devices: definition and measurements, State-of-the-art: reconstruction and acquisition software), Site-Planning (PET/CT site planning for a state-of-the-art scanner), Radiation Protection (Patient dose optimisation, Occupational dose minimization), Selection and Commissioning of PET/CT scanners (Comparing figures-of-merit and performance indicators of PET/CT scanners, Optimization of PET/CT acquisition protocols), Acceptance and QC (Acceptance testing of PET/CT, Demonstration of acceptance testing, Quality Control of PET/CT, Demonstration of quality control testing), Advanced applications (FDG PET/CT-based delineation of tumour volumes in radiotherapy planning, FDG-PET/CT software for image segmentation, State-of-the-art in Correlative Imaging: methods and software for PET image fusion with other imaging modalities, Standardization of 18F-FDG PET/CT for treatment response assessments), Future developments (PET/MRI imaging).

Organizers

Jaroslav Ptacek, Martin Steiner (Czech Republic)  
Carmel Caruana, Marco Brambilla, Alberto Torresin, Peter Sharp, Stelios Christofides (EFOMP)

Teachers

Thomas Beyer  
Centre for Medical Physics and Biomedical Engineering, Medical University of Vienna, Austria

Nicola Belcari  
Department of Physics, University of Pisa, Italy
Ronald Boellaard  Department of Nuclear Medicine and PET Research, VU University Medical Centre, Amsterdam, Netherlands
Marco Brambilla  Department of Medical Physics, University Hospital, Novara, Italy
Roberta Matheoud  Department of Medical Physics, University Hospital, Novara, Italy
Jaroslav Ptacek  Department of Medical Physics and Radiation Protection, Faculty Hospital Olomouc, Czech Republic
Bernhard Sattler  Department of Nuclear Medicine, University Hospital, Leipzig, Germany
Andreas Schaefer  Department of Nuclear Medicine, Saarland University Medical Centre, Homburg, Germany
Jiri Trnka  Department of Nuclear Medicine, First Faculty of Medicine, Charles University Prague and General University Hospital Prague

Course time table

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<th>4th July Thursday</th>
<th>Session</th>
<th>Title</th>
<th>Description</th>
<th>Lecturer</th>
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<tr>
<td>14:00-15:00</td>
<td>Hardware and software update</td>
<td><strong>Physics and technology of state of the art PET/CT scanners</strong></td>
<td>Decay, emission, photon detection, detectors, new technologies</td>
<td>Belcari</td>
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<tr>
<td>15:00-16:00</td>
<td></td>
<td><strong>Physical figures of merit of PET/CT data and image quality - definition and measurements</strong></td>
<td>NECR, HC-RC, noise, CNR, lesion detectability</td>
<td>Belcari</td>
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<td>16:00-16:30</td>
<td>coffee break</td>
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<tr>
<td>16:30-17:30</td>
<td></td>
<td><strong>Advanced imaging and reconstruction techniques</strong></td>
<td>FBP, iterative methods, TOF, PSF, dynamic and gated acquisitions</td>
<td>Trnka</td>
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<td>17:30-18:30</td>
<td></td>
<td><strong>PET/CT site planning</strong></td>
<td>Physical and organizational provision for installation of a PET/CT scanner</td>
<td>Brambilla</td>
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<tr>
<th>5th July Friday</th>
<th>Session</th>
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<th>Description</th>
<th>Lecturer</th>
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<tr>
<td>8:00-9:00</td>
<td>Radiation protection</td>
<td><strong>Occupational radiation protection</strong></td>
<td>Update on occupational effective and equivalent doses</td>
<td>Ptacek</td>
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<tr>
<td>9:00-10:00</td>
<td>Selection of PET/CT scanners</td>
<td><strong>Comparing figures-of-merit and performance indicators of PET/CT scanners</strong></td>
<td>How to compare device performance indicators</td>
<td>Beyer</td>
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<tr>
<td>10:00-10:30</td>
<td>coffee break</td>
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<tr>
<td>10:30-11:15</td>
<td>Commissioning of PET/CT scanners</td>
<td><strong>Optimization of PET/CT acquisition protocols</strong></td>
<td>Emission scan duration, injected activity, image reconstruction</td>
<td>Boellaard</td>
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<tr>
<td>11:15-12:00</td>
<td></td>
<td><strong>Clinical Optimization of PET/CT</strong></td>
<td>Adaptations of contrast</td>
<td>Beyer</td>
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Standardization of 18F-FDG PET/CT for treatment response assessments

The need for standardization in relation to the specific use of SUVs and SUV changes in studies of treatment response assessments

Acceptance and QC

Guidelines, experiences and requirements

Practical demonstration

Quality controls of PET/CT

Guidelines, experiences and requirements

Practical demonstration

EFOMP Bursary

The purpose of this award is to make it possible for a nuclear medicine medical physicist from Eastern Europe who is not yet recognized as a medical physics expert to participate in the EFOMP School for Medical Physics Experts to be held in Prague summer 2013. The applicants must have recently achieved the level of a Qualified Medical Physicist and must have been involved in medical physics activities in either a hospital, university or research...
institute for a period of at least two years prior to the start of the school. The value of the award will be the registration fee to attend the conference. Travel and subsistence costs are the responsibility of the applicant and cannot be funded by EFOMP. Applicants are to send a two page CV by email to:
- Carmel Caruana (carmel.j.caruana@um.edu.mt)
- Marco Brambilla (marco.brambilla@maggioreosp.novara.it).
Please put ‘Application for EFOMP bursary for Prague 2013’ in the email header. Applicants must be members of a National Member Organization of EFOMP. Deadline for applications is 21st March 2013.

Further information

Course language: English
Course capacity: 50 participants
Level: MPE
Fee: 250 € (early registration 2 Jan – 7 Apr 2013)
      300 € (late registration 8 Apr – 20 Jun 2013)
      5 coffee breaks and 2 main meals included
CAMP bank account:
   IBAN: CZ22 0300 0000 0001 9078 9865
   BIC: CEKOCZPP
   Account Name: CESKA SPOLECNOST FYZ
   Bank address: CSOB a.s.
                Na Morani 360/3
                120 00 Prague 2
                Czech Republic

Please, provide us with the variable symbol recieved after registration. You can state it in a "payment purpose" comment.

Duration: 4 Jul 2013 – 6 Jul 2013
Study workload: 16 hours of lectures, 2 hours of practical demonstration
Venue: Dept. of Dosimetry and Application of Ionizing Radiation, Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague, Břehová 7, 115 19 Prague 1, CZECH REPUBLIC
      GPS coordinates: 50°5'27.723"N, 14°24'58.801"E

Accommodation: Individual
Registration: Electronic registration via www.csfm.cz/Summer2013.html
Registration period: 2 Jan 2013 – 20 Jun 2013

For all practical information, including accommodation and public transport in Prague, please contact Czech part of organizing committee: summer2013@csfm.cz.