Molecular Imaging holds promise for improved patient management in medicine and surgery. To realize this goal, a thorough understanding of the instrumentation and diagnostic agents that comprise the field is necessary. Molecular Imaging: Preclinical and Clinical Advances will provide a comprehensive educational experience in the physics, chemistry, engineering, and physiology that are the foundations of molecular imaging. Faculty specializing in basic science, clinical translation, and clinical applications have been carefully chosen to bring course attendees to the state-of-the-art in the field.

The course is designed to encourage interactive audience participation on case studies, discussion, and with electronic slides. Upon successful completion of the course, physicians will receive CMLO credit (USA) and EACME credit (Europe). In addition, physicians will be given an opportunity to work towards their Maintenance of Certification (MOC) by taking ASQ Assessment Modules (SAMs).

The course will cover most aspects of molecular imaging (including optical imaging, SPECT, PET, CT, MRI, ultrasonography, confocal imaging, contrast agents, medical device development, preclinical imaging, regulatory, statistical, and legal issues surrounding clinical translation, and state-of-the-art clinical imaging techniques, disease processes. Upon successful completion of the course, physicians will be given an opportunity to work towards their Maintenance of Certification (MOC) by taking ASQ Assessment Modules (SAMs).

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The course is designed to encourage interactive audience participation in a case-based discussion, often with clinical scenarios. Upon successful completion of the course, physicians will receive CME credit (USA) and EACCME credit (Europe). In addition, physicians will be given an opportunity to work towards their Maintenance of Certification (MOC) by taking ACGME Accreditation Modules (SAMs).

The course will cover most aspects of molecular imaging (including optical imaging, SPECT, PET, CT, MRI, ultrasound, confocal microscopy, contrast agents, radioactive target delivery, preclinical imaging, regulatory, statistical, and legal issues surrounding clinical translation, and state-of-the-art imaging in cancer, heart disease, and other human conditions).

Distinguished guest faculty, including members of the faculty of the Harvard Medical School will update physicians, scientists, and trainees on the latest techniques in molecular imaging as well as those under development and slated for clinical implementation in the future. Faculty will often opt to give a glimpse into new and emerging methodologies in molecular imaging that could become part of clinical practice within the next decade.

LEARNING OBJECTIVES

Upon completion of this course, participants will be able to:

• Explain the basic physics underlying molecular imaging.
• Explain the basic chemistry underlying molecular imaging.
• Utilize the basic chemistry underlying molecular imaging.
• Explain the basic physics underlying molecular imaging.
• Upon completion of this course, participants will be able to:

TARGET AUDIENCE

Clinicians, researchers, and trainers interested in an in-depth learning experience. This course will introduce the fundamental physics, chemistry, and engineering that underpin the field of molecular imaging, as well as present the state-of-the-art in preclinical imaging, clinical translation, and clinical applications.

The Harvard Medical School will update physicians, scientists, and trainees on the latest techniques in molecular imaging as well as present the state-of-the-art in preclinical imaging, clinical translation, and clinical applications.

TARGET AUDIENCE

• Utilize the basic chemistry underlying molecular imaging.
• Explain the basic physics underlying molecular imaging.
• Upon completion of this course, participants will be able to:

LEARNING OBJECTIVES

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March 16–19, 2012
MOLECULAR IMAGING: Preclinical and Clinical Advances

FRIDAY, OCTOBER 19, 2012
2:45–3:00
Clinical translation: IP & industry
M. Lenkinski

3:00–3:45
Photoacoustic & acoustooptic imaging
K. Tearney

3:45–4:30
Role of PET in proton therapy
R. Lewis

COURSE SCHEDULE

2:00–2:45
State-of-the-art: Pediatric PET/CT
J. Manning

2:45–3:00
State-of-the-art: MRI and PET imaging of cancer disease detection
M. Lenkinski

3:00–3:45
State-of-the-art: MRI imaging of cancer disease detection
T. Manning

3:45–4:30
State-of-the-art: PET/CT imaging of cancer disease detection
K. Tearney

4:30–5:15
Concluding remarks
P. Manning

THURSDAY, OCTOBER 18, 2012
2:00–2:45
Clinical translation: PET/CT development
R. Lewis

2:45–3:00
SPECT/MRI: Principles and evolution of SPECT/CT and SPECT/MRI
J. Cheng

3:00–3:45
High-field MRI and MR spectroscopy
J. Cheng

3:45–4:30
Human neurological PET/MR
S. Valerius

4:30–5:15
Medical imaging using spatially & temporally modulated light
R. Lewis

5:15–5:30
Post-prandial stretching and exercise
P. Manning

WEDNESDAY, OCTOBER 17, 2012
2:00–2:45
PET radiochemistry/pharmacy: oncology
M. Lenkinski

2:45–3:00
SBR optimization
M. Lenkinski

3:00–3:45
Other Dzs
M. Lenkinski

3:45–4:30
SPECT/MRI: development
J. Cheng

4:30–5:15
Break

5:15–5:30
Registration and continental breakfast

Program changes/substitutions may be made without notice.
**SCHEDULE**

**THURSDAY, OCTOBER 18, 2012**

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MOLECULAR IMAGING: PRECLINICAL AND CLINICAL ADVANCES

LEARNING OBJECTIVES
- Understand the basic chemistry underlying molecular imaging.
- Learn about the latest techniques in molecular imaging, as well as those under development and slated for clinical implementation.
- Master the fundamentals of clinical translation, and state-of-the-art clinical imaging in cancer, health diseases, and other human conditions.

COURSE DESCRIPTION
- This course will provide a comprehensive educational experience. This course will introduce the fundamentals of physics, chemistry, and engineering that underpin imaging modalities and those that are the foundation of molecular imaging.
- Faculty specializing in basic science, clinical translation, and clinical applications have been carefully chosen to bring course attendees to the state-of-the-art in the field.
- The course is designed to encourage interactive audience participation and discussion, often with more than one clinical scenario.
- Upon successful completion of the course, physicians will receive CRCE (USD) and UECME (Europe). In addition, physicians will be given an opportunity to work toward their Maintenance of Certification (MOC) by taking the ASMM Accredited Assessments (SAQ).

TARGET AUDIENCE
- Clinicians, researchers, and trainees interested in an interdisciplinary learning experience.
- This course will be of interest to MDs, PhDs, nurses, and scientists.

REGISTRATION INFORMATION
- To register or view activity information online, visit: www.cme.hms.harvard.edu/courses/molecularimaging.
- To receive proper registration, please add the first three characters of the source code found at the bottom of the registration form.

DISCLOSURE POLICY
- Harvard Medical School (HMS) adheres to all ACCME Essential Areas, Standards and Policies. It is HMS's policy that those who influence the content of a CME activity (eg, planners, faculty, and others) disclose all relevant financial relationships with commercial entities so that HMS may identify and resolve any conflicts of interest prior to the activity. These disclosures will be provided in the activity materials along with any disclosures of any commercial support received for the activity. Additionally, faculty members have been instructed to disclose any limitations of funds and unpredictable uses of products during their presentations.

REFUND POLICY
- A handling fee of 5% will be deducted for cancellation. Refund requests must be received by postal mail, email, or fax one week prior to this activity. No refunds will be given thereafter.

COURSE LOCATION
- The course will be held at the Fairmont Copley Plaza, 118 St. James Ave., Boston, Massachusetts, USA (Telephone: 617-267-5300; Fax: 617-267-7698).

ACCOMMODATIONS/TRAVEL
- A limited number of rooms have been reserved at the Fairmont Copley Plaza (Telephone: 617-267-5300 or 800-461-1614) until September 24, 2012. Please specify that you are attending this course to receive a reduced room rate of $299 per night Simple/Double plus 4.75% tax. Final room blocks are available online at www.reservec.com or by phone at 1-800-461-1614. Do not purchase non-refundable tickets until you have received an email from our office confirming your paid registration.

INQUIRIES
- For registration questions, contact the HMS Office of Continuing Education, PO Box 417476, Boston, MA 02241-7476. Please offer the registration form to Harvard Medical School–Department of Continuing Education, PO Box 417476, Boston, MA 02241-7476. Telephone or fax registration is not accepted. Registration with cash payments is not permitted. Upon receipt of your paid registration an email confirmation from the HMS-CE office will be sent to you. Be sure to include an email address that you check frequently. Your email address will be used for critical information, including registration confirmation, evaluation, and certificate.

ENDS
- For more information, please visit: www.cme.hms.harvard.edu/courses/molecularimaging.

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### FACULTY

Mireille Rosenberg, PhD: Associate Professor of Radiology; Chief, Division of Nuclear Medicine, Department of Radiology, Massachusetts General Hospital, Boston, MA

Long Ngo, PhD: Associate Professor of Radiology; Chief, Division of Molecular Imaging, Department of Radiology, Massachusetts General Hospital, Boston, MA

Georgios El Fakhri, PhD: Associate Professor of Radiology; Chief, Division of Molecular Imaging, Department of Radiology, Massachusetts General Hospital, Boston, MA

John V. Frangioni, MD, PhD: Associate Professor of Radiology; Director, Integrated MR-PET, Massachusetts General Hospital, Boston, MA

Charles Lin, PhD: Assistant Professor of Radiology, Massachusetts General Hospital, Boston, MA

Jason S. Lewis, PhD: Instructor in Dermatology, Massachusetts General Hospital, Boston, MA

Lihong Wang, PhD: Gene K. Beare Distinguished Professor, Departments of Biomedical Engineering and Radiology, Washington University, St. Louis, MO

### SCHEDULE

#### THURSDAY, OCTOBER 11, 2012

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00-7:30</td>
<td>Continental breakfast</td>
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<tr>
<td>7:30-8:00</td>
<td>Whole body PET/CT and SPECT</td>
<td>Robert E. Linkovik, PhD, Professor of Radiology, Director of Radiology, Massachusetts General Hospital, Boston, MA</td>
</tr>
<tr>
<td>8:00-8:30</td>
<td>SPECT radiochemistry/pharmacy &amp; development</td>
<td>Jennifer L. Knezevic, PhD, Associate Professor of Biomedical Engineering, Duke University, Durham, NC</td>
</tr>
<tr>
<td>8:30-9:00</td>
<td>Break</td>
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<tr>
<td>9:00-9:30</td>
<td>Breast: Intravascular ultrasound using bright light</td>
<td>Jack Poate, MD, PhD, Chief of the Imaging Oncology Unit, Dana-Farber Cancer Institute, Boston, MA</td>
</tr>
<tr>
<td>9:30-10:15</td>
<td>Advanced in SPECT imaging agents</td>
<td>Andrew J. Lenkinski, MD, PhD, Chief of Nuclear Medicine, Memorial Sloan-Kettering Cancer Center, New York, NY</td>
</tr>
<tr>
<td>10:15-10:30</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>10:30-11:15</td>
<td>Breast: Post-prandial stretching and exercise</td>
<td>Jack Poate, MD, PhD, Chief of the Imaging Oncology Unit, Dana-Farber Cancer Institute, Boston, MA</td>
</tr>
<tr>
<td>11:15-12:00</td>
<td>Clinical translation: new diagnostic medical devices</td>
<td>Jean-Francois Bouchard, MD, PhD, Professor of Radiology and Director, Joint PET Program, Dana-Farber Cancer Institute, Boston, MA</td>
</tr>
</tbody>
</table>

#### FRIDAY, OCTOBER 12, 2012

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00-7:30</td>
<td>Continental breakfast</td>
<td></td>
</tr>
<tr>
<td>7:30-8:00</td>
<td>State-of-the-art: PET/MR imaging of disease detection</td>
<td>Mahmood El Fakhri, MD, PhD, Professor of Radiology and Director, Massachusetts General Hospital, Boston, MA</td>
</tr>
<tr>
<td>8:00-8:45</td>
<td>SPECT radiochemistry/pharmacy &amp; development</td>
<td>Jennifer L. Knezevic, PhD, Associate Professor of Biomedical Engineering, Duke University, Durham, NC</td>
</tr>
<tr>
<td>8:45-9:30</td>
<td>Clinical translation: State-of-the-art: PET/MR imaging of disease detection</td>
<td>Jennifer L. Knezevic, PhD, Associate Professor of Biomedical Engineering, Duke University, Durham, NC</td>
</tr>
<tr>
<td>9:30-10:15</td>
<td>State-of-the-art: SPECT PET imaging of heart disease</td>
<td>Mahmood El Fakhri, MD, PhD, Professor of Radiology and Director, Massachusetts General Hospital, Boston, MA</td>
</tr>
<tr>
<td>10:15-10:30</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>10:30-11:15</td>
<td>State-of-the-art: PET/MR imaging of heart disease</td>
<td>Mahmood El Fakhri, MD, PhD, Professor of Radiology and Director, Massachusetts General Hospital, Boston, MA</td>
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<td>11:15-12:00</td>
<td>Clinical translation: State-of-the-art: PET/MR imaging of heart disease</td>
<td>Mahmood El Fakhri, MD, PhD, Professor of Radiology and Director, Massachusetts General Hospital, Boston, MA</td>
</tr>
</tbody>
</table>

### PROGRAM DESCRIPTION

#### October 11th

- **Registration and continental breakfast**
- **Welcome and introduction**
  - Multi-disciplinary molecular imaging and systems biology
  - Medical imaging using spatially & temporally modulated light
  - Human neurological PET/MR
  - Break
  - High-field SFI and MR spectroscopy
  - Principles and evolution of SPECT and SPECT/MR

#### October 12th

- **State-of-the-art: PET/MR imaging of disease detection**
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- **State-of-the-art: PET/MR imaging of disease detection**

### Tuition Fee

- **Physicians/Scientists:** $995 (USD)
- **First Time Participants:** $995 (USD)
- **Repeat Participants:** $1,000 (USD)

#### Contact Information

- **E-Mail Address:**
- **Board Certified:**
- **U.S. Medical School:**
- **International:**
- **Year of Graduation:**
- **Note:** Online registrants – add the first three characters of source code found here.

- **Continental breakfast**
- **Total course fee:**
- **Breakfast & lunch**
- **Travel and accommodations**

**Program changes/cancellations may be made without notice.**