We gratefully acknowledge the following organizations and people for making this symposium possible:

- Siemens Healthcare for providing travel support, breakfasts, lunches, and refreshments for faculty and attendees
- Mayo Clinic for providing the meeting space
- The program committee for their work on organizing the meeting’s content
- The faculty for sharing their time and knowledge with us
- Drs. Cynthia McCollough and JG Fletcher for hosting Thursday evening’s dinner at the Foundation House
- Dr. Ahmed Halaweish for organizing lodging and local transportation
- Ms. Kristina Nunez for organizing meeting and program logistics
- Mr. Steven Orwoll and Ms. Amy Jensen for program artwork and layout
Colleagues and Friends,

In September of 2004, we celebrated the opening of Mayo Clinic’s CT Clinical Innovation Center. Under the leadership of Drs. JG Fletcher and CH McCollough, and in collaboration with the CT division of Siemens Healthcare, the center has grown to be the largest CT translational research group in the world. With Dr. McCollough’s NIH grant portfolio, a thriving basic research group now operates within this translational context.

With this symposium, and another ribbon-cutting ceremony, we celebrate this marriage of translational and basic research and commemorate the 10-year anniversary of the CT Clinical Innovation Center. Over the next two days, we will learn about the physics and technical aspects of the recently installed prototype whole-body photon-counting CT system. This scanner – the first of its kind – offers an unprecedented opportunity to explore the clinical applications of this technology. It is our hope that this symposium, which celebrates the last decade of innovation in CT imaging, launches a new decade of high-impact imaging innovations that translate directly into improved patient care. We invite each of you to join our prestigious faculty in considering the new chapter in CT imaging that this detector technology makes possible.

On behalf of each member of our team – physicians, scientists, engineers, research fellows, graduate students, and our supporting staff – we welcome you to the Mayo Clinic for this Scientific Symposium on Photon-Counting Multi-Energy CT.

Cynthia McCollough  
Director, CT Clinical Innovation Center, Mayo Clinic

Walter Maerzendorfer  
CEO, CT and Radiation Oncology, Siemens Healthcare
**Thursday, September 18, 2014**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:45-8:30 a.m.</td>
<td>Continental Breakfast</td>
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<tr>
<td>8:30-9:00 a.m.</td>
<td>Welcome and Meeting Objectives</td>
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<td>- Cynthia H. McCollough, PhD</td>
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<tr>
<td>9:00-9:15 a.m.</td>
<td>Session I: State of the Art Photon-Counting CT Technology</td>
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<td>- Moderators: Drs. E. Ritman and S. Kappler</td>
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<tr>
<td></td>
<td>Overview: Technical aspects of photon-counting CT</td>
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<td>- Thomas Flohr, PhD</td>
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<tr>
<td>9:15-9:30 a.m.</td>
<td>Design of the Siemens prototype photon-counting CT system</td>
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<td>- Steffen Kappler, PhD</td>
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<tr>
<td>9:30-9:45 a.m.</td>
<td>How to build a photon-counting detector for a clinical CT scanner</td>
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<td>- Peter Hackenschmied, PhD</td>
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<td>~ 15-minute break</td>
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<tr>
<td>10:00-10:15 a.m.</td>
<td>First experiences with photon-counting CT</td>
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<td>- Cynthia McCollough, PhD</td>
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<td>10:15-10:30 a.m.</td>
<td>Pulse pile-up, charge sharing, and k-escape in photon-counting detectors</td>
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<td>- Katsuyuki (Ken) Taguchi, PhD</td>
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<td>10:30-10:45 a.m.</td>
<td>Energy-domain-based noise reduction techniques</td>
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<td>- Shuai Leng, PhD</td>
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<td>10:45-11:45 a.m.</td>
<td>Panel Discussion</td>
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<td>11:45 a.m.-12:45 p.m.</td>
<td>Lunch</td>
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<td>12:45-1:00 p.m.</td>
<td>The Importance of Academic/Industrial Collaborations in Medicine</td>
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<td>- Bernd Montag, PhD</td>
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<td>1:00-1:15 p.m.</td>
<td>Session II: Current and Potential Applications of Multi-Energy CT</td>
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<td>- Moderators: Drs. C. McCollough and T. Flohr</td>
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<tr>
<td>1:15-1:30 p.m.</td>
<td>Current and potential applications in neurological imaging</td>
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<td>- Rajiv Gupta, MD</td>
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<td>1:30-1:45 p.m.</td>
<td>Current and potential applications in thoracic imaging</td>
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<td>- Eric Hoffman, PhD</td>
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<td>1:45-2:00 p.m.</td>
<td>Current and potential applications in the abdomen: Monoenergetic imaging</td>
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<td>- J.G. Fletcher, MD</td>
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<td>2:15-2:30 p.m.</td>
<td>Current and potential applications in vascular imaging</td>
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<td>- Dominik Fleischmann, MD</td>
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<td>2:30-2:45 p.m.</td>
<td>Current and potential applications in musculoskeletal and breast imaging</td>
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<td>- Katrina Glazebrook, MBChB</td>
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<td>2:45-3:00 p.m.</td>
<td>Visualization of multi-energy CT data</td>
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<td>- Anders Persson, MD</td>
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<td>3:00-3:50 p.m.</td>
<td>Panel Discussion</td>
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<td>4:00 p.m.</td>
<td>Ribbon-cutting ceremony and tour of photon-counting CT suite</td>
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<tr>
<td>6:30 p.m.</td>
<td>Dinner at Foundation House</td>
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(by invitation only; business formal attire)
Friday, September 19, 2014

Continental Breakfast 8:00-8:45 a.m.

Session III: New Contrast Agents and Potential Applications
- Moderators: Drs. S. Leng and S. Ulzheimer

Gold nanoparticles 8:45-9:00 a.m.
- Zahi Fayad, PhD

Intrinsic contrast materials 9:00-9:15 a.m.
- Erik Ritman, MD, PhD

Novel contrast agents and their potential for photon-counting CT 9:15-9:30 a.m.
- Hubertus Pietsch, MD

Panel Discussion 9:30-10:00 a.m.

~ 15-minute break ~

Session IV: Potential Research Projects and Collaborations
- Moderators: Drs. J.G. Fletcher and B. Schmidt

The Role of the NIH in bringing new technology into clinical practice 10:15-10:30 a.m.
- Antonio Sastre, PhD

Brainstorming: Project ideas 10:30-12:00 p.m.

Summarize most promising projects 12:00-12:30 p.m.

Lunch (informal discussion and voting over lunch) 12:30-1:30 p.m.

Wrap Up/Next Steps 1:30-2:30 p.m.

~ END OF SYMPOSIUM ~ 2:30 p.m.

Thank you, and safe travels
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