

### 16th Annual International Symposium on Multidetector-Row CT June 9 – 12, 2014 Hyatt Regency | San Francisco

#### **Course Directors**

**Geoffrey D. Rubin, MD, FACR**Geller Distinguished Professor of Radiology and Bioengineering, Duke University

Maximilian F. Reiser, MD

Director of Clinical Radiology, Grosshadern Clinic, University of Munich



#### Co-directors

Daniel Boll, MD

Duke University Medical Center

Dominik Fleischmann, MD

Stanford University School of Medicine

Bruce Greenberg, MD

University of Arkansas for Medical Sciences

Jonathon Leipsic, MD

St. Paul's Hospital, University of British Colombia

Ann Leung, MD

Stanford University Medical Center

Michael H. Lev, MD FAHA FACR

U. Joseph Schoepf, MD

Medical University of South Carolina

William P. Shuman, MD FACR

University of Washington School of Medicine







#### **ABOUT ISCT**

ISCT is dedicated to promoting and coordinating the scientific, philanthropic, intellectual and professional activities of computed tomography. The Society's mission is to serve the health care needs of the general public through the support of science, teaching and research and the quality of service in the field of computed tomography.

ISCT is pleased to present two of the premiere CT conferences in the world. These symposia each have a long tradition of success and will retain their distinct features including their unique meeting formats and the participation of world experts. The move to ISCT will not change these meetings, rather create an opportunity for synergy and shared innovation in CT education.

With the rapid pace of technology change in CT, the need for education is critical. Together under the ISCT umbrella, the educational programs will continue to highlight evolving CT technology and play a key role in disseminating the capabilities and potential for the various platforms, while also serving as a forum for investigators to collaborate and compare imaging approaches and results.

#### ISCT LIVE STREAM

The ISCT is pleased to announce that the #MDCT2014 Symposium will be presented over the internet as a Live Stream on the AuntMinnie.com and ISCT.org websites. Those that can not attend the course in person now have the opportunity to visit the live stream and participate in the course remotely, including the functionality of being able to send questions in real time to session moderators.

#### CME ON-DEMAND LIBRARY

Your engagement does not end with the end of the 16th MDCT Symposium. Visit the ISCT/"CME On-Demand" library for full access to the lectures with your registration at isct.org.

**FUTURE CONFERENCE DATES** 

June 7-10, 2015
Hyatt Regency San Francisco

June 20-23, 2016
Hyatt Regency San Francisco



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

### WELCOME

Welcome to the 16th Annual International Symposium on MDCT

This year we celebrate the 25th anniversary of spiral CT with the inventor himself, Willi Kalendar, from the University of Erlangen in Germany. This key innovation was a critical precursor to the remarkable MDCT technology that we use today. Please join Willi and me at the opening session for a look back over these 25 years and the key developments along the way.

CT technology continues to evolve at a rapid pace. The last few years have seen a remarkable acceleration in the technical development of CT scanners as well as the diversity of these technical developments. Our goal in creating this program is to present the full spectrum of what is new and exciting in CT both from the perspective of technical advances, novel applications, evidence- based practice, and trends in workflow and practice patterns.

This year the ISCT is excited to announce two new Workshops at MDCT, Dual Energy CT, led by Bill Shuman, MD from the University of Washington and Transarterial Aortic Valve Implantation (TAVI), led by Jonathon Leipsic, MD from the University of British Columbia. In addition to the Workshops the MDCT Symposium continues with the program elements that have set our program apart, including the nine-minute lecture format and the workstation face-off.

Our faculty's expertise spans a full range of experience with all of the latest technologies and applications. I hope that you share my excitement as we see the very first images from novel CT systems, learn new approaches for safe and effective CT acquisition, and hear the most up-to-date information on clinical trials.

Be sure to download the 16th MDCT Mobile App your "Symposium Concierge"! Join the Twitter conversation by using #MDCT2014

On behalf of the ISCT I thank you for your participation in our symposium and wish you a highly stimulating and educational experience.

Geoffrey D. Rubin, MD



### 16TH ANNUAL INTERNATIONAL SYMPOSIUM ON MULTIDETECTOR-ROW CT

#### YOUR SYMPOSIUM CONCIERGE - DOWNLOAD THE APP NOW!

The 16th MDCT Mobile App is a native application for iPhone, iPad, Android devices. There's also a web-based version of the application for all other web enabled devices.

For Attendees, 16th MDCT Mobile App provides intuitive, easy to use features serving to augment this event:

- The Home section serves as your portal to everything the app has to offer
- The Program section contains a day-by-day view and allows you to add specific sessions to your device's calendar
- Faculty is your go-to section to learn more about the individuals involved with this event
- The Exhibitors section is your go-to to see what exhibitors are presenting at this event, as well as learn more about them.
- The Restaurants and Shopping sections help you find some rest and relaxation nearby
- Built-in Twitter feed allows you to follow the happenings of MDCT 2014 using #MDCT2014 or #ISCT
- Rate the sessions you attend and comment on them, too
- Join our Newsletter to stay up to date by visiting ISCT.org

Downloading the 16th Annual International MDCT Symposium Mobile App couldn't be easier

Simply search for "16th MDCT" on your devices app store for iPhone, iPad and Android devices.

For All Other Phone Types: While on your smartphone, navigate to www.isctmdct.com

Alternatively, scan the QR code below.



Join the Twitter Conversation #MDCT2014









16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

### 16th Annual International Symposium on Multidetector-Row CT June 9 - 12, 2014

#### TARGET AUDIENCE

This activity has been designed to meet the educational needs of Radiologists, Cardiologists, Medical Imaging Scientists, Radiologic Technologists, Nurses and non-radiologist physicians who utilize CT technology and its applications.

#### STATEMENT OF NEED

Learners need to understand the impact of new MDCT developments on clinical practice and how to implement acquisition protocols, dose reduction strategies and visualization techniques to take full advantage of these advances. Developments in MDCT technology have resulted in a broad spectrum of new and improved clinical applications. Learners need to recognize pitfalls and employ applications and techniques in abdominal, musculoskeletal, thoracic, neuro, cardiac and vascular CT imaging for improved image quality and diagnosis.

#### **EDUCATIONAL OBJECTIVES**

After completing this activity, the participant should be better able to:

- Use appropriate techniques to reduce radiation exposure while maintaining diagnostic image quality
- · Describe advanced image rendering techniques and post processing workstations to fully analyze scan data
- Utilize the current methods for performing cardiac CT in the clinical settings
- Implement the methods and applications for improving CT imaging utilizing the latest generation of CT scanners
- Enumerate current techniques and protocols to accurately diagnose disorders of the chest, brain, abdomen, vascular, and musculoskeletal systems in adults and children
- Specify imaging and post-processing techniques to accurately measure brain perfusion for more detailed diagnoses and follow-up to treatment.

#### **Accreditation Statement**

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education through the joint sponsorship of Postgraduate Institute for Medicine (PIM), The International Society for Computed Tomography (ISCT) and CME Science. The Postgraduate Institute for Medicine is accredited by the ACCME to provide continuing medical education for physicians.

#### **CREDIT DESIGNATION**

The Postgraduate Institute for Medicine designates this live activity for a maximum of 34.0 AMA PRA Category 1 Credit(s) $^{\text{m}}$ . Physicians should claim only the credit commensurate with the extent of their participation in the activity. Please note Work Station Face-Off is not available for CME credit.

#### How to Print CME CERTIFICATE

You may complete the evaluation online at www.cmeuniversity.com. On the navigation menu, click on "Find Post-tests by Course" and search by project ID 9879. You will be required to register if you have not done so previously. Please make note of your login name and password as you will be able to use this for future activities. Upon successfully completing the evaluation, your certificate will be made available immediately.



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### **TECHNOLOGIST CREDIT**

This course has been approved for up to 34.0 ARRT Category A Continuing Education credits for those technologists attending the entire course.

#### **SAM**

Qualified by the American Board of Radiology in meeting the criteria for self-assessment toward the purpose of fulfilling requirements in the ABR Maintenance of Certification Program.

SAM credits are required for radiologists certified since 2002, and strongly suggested for all radiologists. Due to recent CMS negotiations with the American Board of Radiologist, EVEN radiologists with grandfathered lifetime certification are now encouraged to participate in the MOC process. Specifically, pay for performance incentives--that may evolve into penalties for noncompliance--are being linked to "being in the process of obtaining" MOC. You can contact the ABR for specifics.

As an attendee of the International Symposium on Multidetector-Row CT, you are eligible to obtain 1 SAM credit offered for this course. The process is very simple and will take only a few minutes to complete. After the course you will be emailed a website link and password to take the post course SAM guiz and print out your own SAM certificate.

Quiz must be completed within 30 days in order to receive credit.

#### **DISCLAIMER**

Participants have an implied responsibility to use the newly acquired information to enhance patient outcomes and their own professional development. The information presented in this activity is not meant to serve as a guideline for patient management. Any procedures, medications, or other courses of diagnosis or treatment discussed or suggested in this activity should not be used by clinicians without evaluation of their patient's conditions and possible contraindications on dangers in use, review of any applicable manufacturer's product information, and comparison with recommendations of other authorities.

#### **ISCT LIVE STREAM**

The ISCT is pleased to announce that the MDCT 2014 Symposium will be presented over the internet as a Live Stream on the AuntMinnie.com and ISCT.org websites. Those that can not attend the course in person now have the opportunity to visit the live stream and participate in the course remotely, including the functionality of being able to send questions in real time to session moderators.

#### **CME ON-DEMAND LIBRARY**

Your engagement does not end with the end of the 16th MDCT Symposium. Visit the ISCT "CME On-Demand" library for full access to the lectures with your registration at isct.org.

#### FUTURE CONFERENCE DATES

June 7-10, 2015

Hyatt Regency San Francisco

Registration begins June 16th, 2014

June 20-23, 2016

Hyatt Regency San Francisco



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### **2014 MDCT PROGRAM DIRECTORS**

### Geoffrey D. Rubin, MD, FACR, FSCBTMR, FNASCI

George B. Geller Distinguished Professor of Cardiovascular Research, Professor of Radiology and Bioengineering Duke Clinical Research Institute Durham, NC

#### Maximilian F. Reiser, MD

Director of Clinical Radiology, University Hospital of Munich, Dean, Medical Faculty of Ludwig-Maximilians University of Munich Munich, Germany

#### **2014 MDCT Co-Directors**

#### Daniel Boll, MD

Associate Professor Abdominal and Cardiovascular Imaging Duke University Medical Center Durham, NC

#### Dominik Fleischmann, MD

Professor of Radiology, Chief of Cardiovascular Imaging Stanford University School of Medicine Stanford, CA

#### Bruce Greenberg, MD

Professor of Radiology and Pediatrics, Chief, Cardiac Imaging of Arkansas Children's Hospital University of Arkansas for Medical Sciences Little Rock, Arkansas

#### Jonathon Leipsic, MD

Department Head, Medical Imaging & Nuclear Medicine, Nuclear Medicine, Director, Advanced Cardiac Imaging, Assistant Professor of Radiology and Cardiology, Radiology and Cardiology, Vice Chairman, Research of the Department of Radiology St. Paul's Hospital Vancouver, BC

#### Ann C, Leung, MD

Professor of Radiology, Associate Chair of Clinical Affairs Section Chief, Thoracic Imaging Stanford University Medical Center Stanford, CA

#### Michael H. Lev, MD FAHA FACR

Director Emergency Neuroradiology, Professor of Radiology Harvard Medical School Boston, MA

#### U. Joseph Schoepf, MD

Professor of Radiology, Medicine, and Pediatrics, Director, Division of Cardiovascular Imaging Medical University of South Carolina Charleston, SC

### William P. Shuman, MD, FACR, FSCBTMR, FSCCT

Vice Chairman and Professor, Department of Radiology, Director of Radiology University of Washington, School of Medicine Seattle, WA



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### **2014 MDCT FACULTY**

#### Dianna M. E. Bardo, MD

Associate Professor of Radiology, Pediatrics & Cardiovascular Medicine, Director of Cardiac Radiology Oregon Health & Science University Portland, OR

#### Richard A. Barth, MD

Radiologist-in-Chief, Lucile Packard Children's Hospital at Stanford, Professor and Associate Chairman of Radiology Stanford University School of Medicine Stanford, CA

#### Hans-Christoph Becker, MD

University Professor of Radiology, in particular non invasive cardiac imaging, Section Chief Computed Tomography Ludwig-Maximilians-University Munich Munich, Germany

#### Alain Blum, M.D., Ph.D

Chief of the MSK and Emergency Departments of Radiology University Hospital of Nancy Nancy, France

#### Daniel Boll, MD

Associate Professor Abdominal and Cardiovascular Imaging Duke University Medical Center Durham, NC

#### Cecelia Brewington, MD

Professor and Vice Chairman Imaging Services University of Texas Southwestern Medical Center Dallas, TX

### Michael Bristow, MD, MSc, FRCPC

Cardiovascular Imaging Fellow Department of Radiology Stanford University School of Medicine Stanford, CA

#### Frandics Chan, MD

Associate Professor of Radiology Stanford University Medical Center Stanford, CA

#### Jared Christensen, MD

Division Chief, Cardiothoracic Imaging, Assistant Professor Duke University Medical Center Durham, NC

### Ricardo C. Cury, M.D., FAHA, FSCCT

Chairman, Radiology Associates of South Florida Vice-Chairman, Florida International University Director of Cardiac Imaging Baptist Hospital of Miami and Baptist Cardiac and Vascular Institute Miami, FL

#### Elliot Fishman, MD

Professor of Radiology, Surgery and Oncology Johns Hopkins Hospital Baltimore, MD

#### Dominik Fleischmann, MD

Professor of Radiology, Chief of Cardiovascular Imaging Stanford University School of Medicine Stanford, CA

#### Joel G. Fletcher, MD

Professor of Radiology, Medical Director, CT Clinical Innovation Center, Department of Radiology, Mayo Clinic Rochester, MN

#### Gabriela Gayer, MD

Professor of Radiology, Sackler Faculty of Medicine Tel Aviv University and Stanford University School of Medicine Stanford, CA

#### Robert C. Gilkeson, MD

Professor of Radiology, Vice Chairman of Clinical Research, Co-Director, Case Center for Imaging Research, Director of Cardiothoracic Imaging University Hospitals Cleveland, OH

#### Vicky Goh, MD

Chair of Clinical Cancer Imaging,
Division of Imaging Sciences &
Biomedical Engineering,
King's College London, Honorary
Consultant Radiologist,
Department of Radiology, Guy's & St
Thomas' Hospitals NHS FoundationTrust,
NIHR Biomedical Research Centre,
President, European Society of
Oncologic Imaging
King's College London
United Kingdom

#### Robert Gould, Sc.D.

Professor and Vice Chair, Department of Radiology and Biomedical Imaging University of California San Francisco San Francisco, CA

#### **Bruce Greenberg, MD**

Professor of Radiology and Pediatrics, Chief, Cardiac Imaging of Arkansas Children's Hospital University of Arkansas for Medical Sciences Little Rock, AK



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### Thomas Henzler, MD

Associate Professor of Radiology, Section Chief of Cardiothoracic Imaging, Computed Tomography, University Medical Center Mannheim, Medical Faculty Mannheim, Heidelberg University Mannheim, Germany

#### Christopher P. Hess, MD, Ph.D.

Associate Professor, Neuroradiology, Chief, Neuroadiology San Francisco VA Medical Center, University of California, San Francisco San Francisco, CA

### Willi A. Kalender, Professor, Dr. med. H.C. Mult. PhD.

Chairman, Institute of Medical Physics University Erlangen-Nuernberg Nürnberg, Germany

#### Seth Kligerman, MD

Assistant Professor, Medical Director of Magnetic Resonance Imaging, Section of University of Maryland School of Medicine Baltimore, MD

#### Kenneth Lau, MD

Associate Professor, Head of CT and Head of Thoracic Imaging Monash Health, Monash University, Melbourne, Australia

#### Jonathon Leipsic, MD

Department Head, Medical Imaging & Nuclear Medicine, Nuclear Medicine, Director, Advanced Cardiac Imaging, Assistant Professor of Radiology and Cardiology, Vice Chairman, Research of the Department of Radiology St. Paul's Hospital Vancouver, BC

#### Ann Leung, MD

Professor of Radiology, Associate Chair of Clinical Affairs, Section Chief, Thoracic Stanford University Medical Center Stanford, CA

#### Michael H. Lev, MD FAHA FACR

Director Emergency Neuroradiology, Professor of Radiology Harvard Medical School Boston, MA

#### Payam Massaband, MD

Acting Chief of Radiology Department of Veterans Affairs, Clinical Instructor Stanford University Stanford, CA

#### Jeffrey B. Mendel, MD

Assistant Professor of Radiology Tufts University School of Medicine Boston, MA

#### Lior Molvin, RT (CT), MBA

Protocol Technologist, Stanford Radiology Stanford CA

#### Sandy Napel, Ph.D.

Professor of Radiology, co-Chief, ISIS, co-Director, Radiology 3DQ Lab Stanford University School of Medicine Stanford, CA

#### Koen Nieman, MD

Associate Professor, Director of Cardiovascular Imaging Research Erasmus University Medical Center Rotterdam, Netherlands

#### Wiro J. Niessen, MD

Professor of Radiology Departments of Radiology & Medical Informatics, Erasmus MC, Rotterdam, Imaging Physics, Delft University of Technology Delft, Netherlands

#### Yoshiraru Ohno, MD, Ph.D.

Professor, General Manager, Advanced Biomedical Imaging Research Center Kobe University Graduate School of Medicine Japan

#### Norbert Pelc, ScD

Chair, Department of Bioengineering, Professor Radiology Stanford University School of Medicine Stanford, CA

#### Laura Pierce, MPA, RT (CT)

Administrative Director of Multi-Dimensional Imaging Duke University School of Medicine Durham, NC

#### Myron A. Pozniak, MD FACR

Professor of Radiology Chief of Body CT Department of Radiology University of Wisconsin School of Medicine and Public Health Madison, WI

#### Mathias Prokop, MD, PhD

Professor and Chairman of Radiology Radboud University Medical Centre Nijmegen Nijmegen, The Netherlands

#### Prabhakar Rajiah, MD

Professor of Radiology University Hospitals Cleveland, OH



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### Patrik Rogalla, MD

Professor of Radiology, Head of Abdominal Division Department of Medical Imaging University of Toronto Toronto, CA

#### Daniel L. Rubin, MD, MS

Assistant Professor of Radiology and Medicine (Biomedical Informatics) Department of Radiology Stanford University Stanford, CA

#### Jonas Rydberg, MD

Professor, Medical Director, Department of Radiology Indiana University School of Medicine Indianapolis, IN

#### **Dushyant Sahani, MD**

Director of CT, Associate Professor of Radiology Harvard Medical School Division of Abdominal Imaging and Intervention Massachusetts General Hospital Boston, MA

#### Sanjay Saini, MD

Professor of Radiology Harvard Medical School Vice Chairman for Finance Department of Radiology Massachusetts General Hospital Boston, MA

#### U. Joseph Schoepf, MD

Professor of Radiology, Medicine, and Pediatrics, Pediatrics, Director, Division of Cardiovascular Imaging Medical University of South Carolina Charleston, SC

#### Danielle M. Seaman, MD

Assistant Professor, Cardiothoracic Imaging Duke University Medical Center Cincinnati, OH

### William P. Shuman, M.D. FACR FSCBTMR FSCCT

Vice Chairman and Professor,
Department of Radiology
Director of Radiology
UW Medical Center University of
Washington, School of Medicine
Seattle, WA

### Claudio Smuclovisky, MD, FACC, FSCCT

Director, SFMI Cardiovascular Institute Holy Cross Hospital, Dept. of Radiology Fort Lauderdale, FL

#### Agron Sodickson MD PhD

Associate Professor of Radiology, Harvard Medical School Section Chief, Emergency Radiology and Medical Director of CT, Brigham and Women's Hospital Boston, MA

#### Jacob Sosna, MD

Associate Professor of Radiology, Chairman Hadassah Hebrew University Medical Center Jerusalem, Israel

#### LN Tanenbaum, MD FACR

Director of MRI, CT and Outpatient/ Advanced Development Icahn School of Medicine at Mount Sinai New York, NY

#### Joachim E. Wildberger, MD

Professor And Chairman,
Department of Radiology
Maastricht University Medical Center,
The Netherlands

#### Juergen K. Willmann, MD

Associate Professor of Radiology Section Chief of Abdominal Imaging Department of Radiology Stanford University, School of Medicine Stanford, CA

#### Max Wintermark, MD

Associate Professor of Radiology, Neurology, Neurological Surgery and Biomedical Engineering, Chief of Neuroradiology University of Virginia Charlottesville, VA

#### Alison G. Wilcox, MD FSCCT

Associate Professor of Radiology and Internal Medicine, Section Chief-Cardiothoracic Imaging, Medical Director, Imaging Keck Medical Center of USC Cincinnati, OH

#### Benjamin M. Yeh, MD

Professor of Radiology Section of Abdominal Imaging University of California San Francisco, CA



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### **2014 MDCT Program**

#### **MONDAY JUNE 9, 2014**

#### New Concepts in CT Scanning - Geoffrey D. Rubin, MD

	<u> </u>	
6:30-7:00 am	Registration and Check-in, Exhibits, Continental Breakfast	
7:00	Program Intro	Geoffrey D. Rubin, MD
7:10	25 V (6   67	Geoffrey D. Rubin, MD & Willi A. Kalender,
7.10	25 Years of Spiral CT	Professor, Dr. med. H.C. Mult. PhD.
7:30	Volumetric CT Scanning in Body, Neuro and MSK Applications	Ricardo C. Cury, MD
7:40	High Pitch Scanning: Always, Sometimes, or Never?	Hans-Christoph Becker, MD
7:50	The Perfect Pitch – Harmony and Dissonance	Patrik Rogalla, MD
8:00	Vascular CT Angiography - What is Next in Volumetric Scanning?	Ricardo C. Cury, MD
0.10	Advantance of a December of Visco Consister France 70 to 150 ld/	Willi A. Kalender, Professor,
8:10	Advantages of a Broad Range of X-ray Spectra From 70 to 150 kV	Dr. med. H.C. Mult. PhD.
8:20	A New Paradigm in Cardiac CT - Volumetric Cardiac Imaging	Ricardo C. Cury, MD
8:30	Sources of dose inefficiency in current CT systems	Norbert Pelc, ScD
8:40	Photon-counting Detectors for Clinical CT:	Willi A. Kalender, Professor,
0.40	What can they offer and what not?	Dr. med. H.C. Mult. PhD.
8:50	Discussion	
9:05	Coffee Break	

#### The Image Quality Conundrum - Geoffrey D. Rubin, MD

	amy cononarom coomey 20 keepin, me	
9:20	Using Low kV CT Imaging in a Busy Clinical Practice to Lower Dose and Improve Disease Visualization	Joel G. Fletcher, MD
9:30	Concepts for a Very Dose Efficient, Next-next Generation CT System for Radiological Applications	Norbert Pelc, ScD
9:40	Next Generation Diagnostic Reference Levels Keyed to Patient Size	Aaron Sodickson MD PhD
9:50	How to Employ CT Noise Reduction in a Heterogeneous CT Practice	Joel G. Fletcher, MD
10:00	Process for Altering CT protocols to reduce dose utilizing iterative reconstruction, K-edge, and BMI	Cecelia Brewington, MD
10:10	Gave Up Filtered Back Projection and I am Not Going Back to the 1970's	Dianna M. E. Bardo, MD
10:20	CT Denoising and Iterative Reconstruction: Promise and Pitfalls (or Beware of What You Don't See)	Joel G. Fletcher, MD
10:30	Comparison of Three Commercial Iterative Reconstruction Algorithms (ASIR, IDOSE SAFIRE) in Kidney Stone CT exams.	Dushyant Sahani, MD
10:40	A Bound on Noise Reduction with Iterative Reconstruction	Norbert Pelc, ScD
10:50	Implementing Iterative Reconstruction in Your Department: Barriers to success and strategies for stepwise deployment	Jeffrey B. Mendel, MD
11:00	Iterative Reconstruction Techniques for Radiation Dose Reduction	Thomas Henzler, MD
11:10	Discussion	
11:25-12:40	Lunch on own	



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

San Francisco

#### MONDAY JUNE 9, 2014 CONTINUED

#### Managing Radiation Exposure - Geoffrey D. Rubin, MD

	aranon exposure occurrey by Robin, Mb	
12:40	Assumptions in Calculating Patient Effective Dose in CT	Robert Gould, Sc.D.
12:50	How to arrive at Sub-mSv Dose Levels in CT	Willi A. Kalender, Professor,
12.30	without compromising image quality?	Dr. med. H.C. Mult. PhD.
1:00	Sub-mSv CT - Finally a reality?	Hans-Christoph Becker, MD
1:10	CT dose optimization - The reality of dose reduction campaigns	Myron A. Pozniak MD FACR
1:20	Bismuth Shields: Arguments Pro and Con	Robert Gould, Sc.D.
1:30	CT scan optimization - Patient Centering: a pitfall to avoid	Myron A. Pozniak MD FACR
1:40	Radiation and Dose Reduction in CT-Guided Spine Intervention	Christopher P. Hess, MD, PhD
1:50	CT dose optimization - Mechanisms of action	Myron A. Pozniak MD FACR
2:00	Radiation Dose Monitoring for Regulatory	Aaron Sodickson MD PhD
	Review and Dose Trending	
2:10	Dose reporting: sense and nonsense	Dominik Fleischmann, MD
2:20	Outlier Detection and Management in Radiation Dose Monitoring	Aaron Sodickson MD PhD
2:30	Impact of California Requirements for CT Dose Reporting	Richard A. Barth, MD
2:40	Experience with the California CT Dose	Robert Gould, Sc.D.
2.40	Reporting Law and the UC Dose project	Nobel ( dodia, Sc.b.
2:50	CT dose optimization – The team approach	Myron A. Pozniak MD FACR
3:00	Automate remote multi-site realtime Monitoring of CT Dose -	William P. Shuman, M.D. FACR
3.00	by Patient, By Scanner, By Exam: What is the Value?	Williall F. Silulliall, W.D. FACK
3:10	Discussion	
3:25	Break	

#### Skeletal - Geoffrey D. Rubin, MD, PhD

3:40	Dynamic CT of the Joints: How can We Improve Reproducibility	Alain Blum, MD, PhD
3:50	Dynamic CT Scan with Subtraction for the Detection of Recurrence of Osteoid Osteoma	Alain Blum, MD, PhD
4:00	How to Identify Hip Implants	Alain Blum, MD, PhD
4:10	Questions	

OTES (additional notes pages at back of book)				



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

### MONDAY JUNE 9, 2014 CONTINUED Dual Energy/Multi-Spectral Imaging - William Shuman, MD, FACR

4:15	Spectral CT: Clinical Realities and Myths in 2014	William P. Shuman, M.D. FACR
4:35	Spectral CT: Acquisition Principles and Clinical Applications	Prabhakar Rajiah, MD
4:45	DECT Workflow Challenges and Solutions	Dushyant Sahani, MD
4:55	Ultra-Low Contrast Medium CT Angiography with Monoenergetic Dual Energy CT and low kV Single Energy CT	Thomas Henzler, MD
5:05	lodine Maps: Subtraction or Dual Energy Imaging, What should we use?	Mathias Prokop, MD, PhD
5:15	Incidental Lesion Characterization by Dual Energy CT in the ER to Reduce Followup Imaging	Aaron Sodickson MD PhD
5:25	Cost Effectiveness of Using DECT in the Management of Kidney Stones.	Dushyant Sahani, MD
5:35	Discussion	
5:45	End of Monday's Session	

<b>NOTES</b> (additional notes pages at	back of book)		



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### **TUESDAY, JUNE 10, 2014**

#### Intravenous Contrast Utilization - Dominik Fleischmann, MD

7:00 am	Fundamentals of Intravenous Contrast Medium Dynamics	Payam Massaband, MD
7:10	Contrast Media Delivery: Standardize and Individualize	Joachim E. Wildberger, MD
7:20	eGFR and Weight-Based Contrast Medium Dosing	Dominik Fleischmann, MD
7:30	Prevention of CIN: Overshooting the Mark?	Joachim E. Wildberger, MD
7:40	Implication of Contrast Media on Patients with Aortic Stenosis	Hans-Christoph Becker, MD
7:50	Low kV Imaging to Reduce Iodine Contrast	Joel G. Fletcher, MD
8:00	Emerging Information Technology for Improved and Integrated Iodine Contrast Delivery	Lior Molvin, RT (CT), MBA
8:10	Discussion	

#### Neuro - Michael H. Lev, MD FAHA FACR

8:25	What's New & Important in CT Neuroimaging for 2014? An Overview	Michael H. Lev, MD FAHA FACR
8:45	Hydrocephalus or Atrophy? Evaluating Ventriculomegaly with MDCT	Christopher P. Hess, MD, PhD
8:55	Coffee Break	
9:10	Automatic Segmentation of Head & Neck MDCT for Treatment Planning: A Multi-Atlas Approach	Wiro J. Niessen, MD
9:20	Time Resolved CTA: Stroke and Beyond	LN Tanenbaum, MD FACR
9:30	4D CTA of Collaterals	Mathias Prokop, MD, PhD
9:40	CT-Guided Injections for Cervicogenic Headache	Christopher P. Hess, MD, PhD
9:50	Dual Energy CT: Brain Hemorrhage vs. Contrast after Mechanical Recanalization	Joachim E. Wildberger, MD
10:00	Low KeV or Low kVp for Brain Imaging	Jacob Sosna, MD Dianna M. E. Bardo, MD
10:10	Why Much (Most?) of the Medical Literature is Wrong & Why this Matter to CTP	Michael H. Lev, MD FAHA FACR
10:20	Discussion	
10:35	Optimized CT at Minimal Dose of the Native and Instrumented Spine	LN Tanenbaum, MD FACR
10:45	A Critique of Iterative Reconstruction Techniques and Reconstruction Filters for Brain CT	Dianna Bardo, MD
10:55	Aggressive CT Dose Management in the Neuro-ICU	LN Tanenbaum, MD FACR
11:05	Brain perfusion: Factors Influencing Accuracy	Mathias Prokop, MD, PhD
11:15	Patient Selection for Stroke Treatment Trials with Advanced CT: What's Sufficient? What's Essential?	Michael H. Lev, MD FAHA FACR
11:25	Discussion	
11:40-1:00 pm	Lunch on own	

**Notes** (additional notes pages at back of book)



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

### TUESDAY JUNE 10, 2014 CONTINUED Lung - Ann Leung, MD

,	2	
1:00	Lung Cancer Screening: Current Status	Ann Leung, MD
1:20	Implementation of a Lung Cancer Screening Program	Jared Christensen, MD.
1:40	Radiologic and Pathologic Correlation of Adenocarcinoma of the Lung	Seth Kligerman, MD
1:50	Management of the Subsolid Nodule	Danielle M. Seaman, MD
2:00	Unusual Manifestations of Lung Cancer	Ann Leung, MD
2:10	Model Based Iterative Reconstruction in Chest CT with radiation dose comparable to chest radiography: clinical use and efficac	Kenneth Lau, MD
2:20	Perfusion ADCT vs Perfusion MRI vs PET/CT for Pulmonary Nodule Assessment	Yoshiraru Ohno, MD, PhD
2:30	The Role of MDCT in Thoracic Ablative Therapies: Before, During, and After Treatment	Jared Christensen, MD
2:40	Perfusion ADCT: Comparison of the Capability for Prediction of Therapeutic Effect with PET/CT	Yoshiraru Ohno, MD, PhD
2:50	Dedicated High-resolution Breast CT can outperform digital mammography and breast tomosynthesis at equivalent dose levels	Willi A. Kalender, Professor, Dr. med. H.C. Mult. PhD
3:00	Discussion	
3:15	Break	
3:30	When the flow works, the work flows: chest perfusion	Patrik Rogalla, MD
3:40	Pulmonary CT perfusion: Are my protocols up-to-date?	Joachim E. Wildberger, MD
3:50	Using iterative Reconstruction in CT lung perfusion: Peals & Pitfalls	Cecelia Brewington, MD
4:00	Whole lung perfusion using area-detector CT	Yoshiraru Ohno, MD, PhD
4:10	Gated wide volume chest CT: an all-in-one approach	Mathias Prokop, MD, PhD
4:20	Thoracic outlet syndrome: why do we need dynamic volumetric acquisition?	Alain Blum, M.D., Ph.D
4:30	Optimizing CTPA: Tips and Tricks	Danielle M. Seaman, MD
4:40	Follow-up imaging findings in patients with pulmonary embolism previously missed in clinical practice	Seth Kligerman, MD
4:50	Dual source CT and dynamic airway imaging - using our Flash CT to better image airway disease	Robert C. Gilkeson, MD
5:00	4-D dynamic CT of upper and middle airways	Kenneth Lau, MD
5:10	What is the optimal KeV for visualization of the Lung?	Jacob Sosna, MD
5:20	Hardware Reduction in the Chest: What works?	Alison G. Wilcox, MD FSCCT
5:30	Organization of lung injury as a pathway to fibrosis	Seth Kligerman, MD
5:45	Discussion	
6:00	End of Tuesday's Session	

**NOTES** (additional notes pages at back of book)



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### WEDNESDAY, JUNE 11, 2014

Abdomen & Oncology - William P. Shuman, M.D. FACR

7:00	MDCT of the Abdomen: Session Overview	William P. Shuman, M.D. FACR
7:10	Follow-up Low Dose CT with MBIR in Cancer Patients:  Ready for Routine Implementation?	Jurgen Willmann, MD
7:20	Liver Detection Algorithm, Fine focal spot scanning, Model Based Iterative Reconstruction for Ureteric Visualization.	Kenneth Lau, MD
7:30	Imaging of Pediatric Appendicitis in the ALARA era-what is the role of CT?	Richard A. Barth, MD
7:40	Selective Use of Oral Contrast Material for Routine CT scans	Benjamin M. Yeh, MD
7:50	What's the GIST Radiologist?	Patrik Rogalla, MD
8:00	Adapting CT Enterography for Every Patient	Joel G. Fletcher, MD
8:10	Lessons to Date from the PROSPeCT Mutlicentre study in Primary Colorectal Cancer	Vicky Goh, MD
8:20	Bioabsorbable Hemostatic Sponges- Close Mimics of Abscess on Postoperative CT	Gabriela Gayer, MD
8:30	Complications Post-Whipples Procedure: Role of CT in Diagnosis and Triage	Elliot Fishman, MD
8:40	Pancreas Perfusion imaging: First Experiences	Mathias Prokop, MD, PhD
8:50	Diagnosis and management of cystic pancreatic lesions: Focus on IPMN	Jurgen Willmann, MD
9:00	Discussion	
9:15	Coffee Break	
9:30	The Missed Diagnosis in GU Imaging and How to Avoid Them: Beyond the Kidney	Elliot Fishman, MD
9:40	latrogenic Ureteral Injuries – When to Suspect and How to Detect on CT	Gabriela Gayer, MD
9:50	Oncologic Application of DECT in the Abdomen	Dushyant Sahani, MD
10:00	Dual energy CT of Focal Liver Lesions: Where are we Now?	William P. Shuman, M.D. FACR
10:10	Liver fat and Fibrosis evaluation with ssDECT using Multi-material Decomposition Algorithm	Dushyant Sahani, MD
10:20	lodine quantification using dual energy CT: internal normalization reduces physiologic variation between patients	Aaron Sodickson MD PhD
10:30	CT Bowel Imaging utilizing iterative reconstruction with emphasis on CT Enterography and CT Colonoscopy	Cecelia Brewington, MD
10:40	Value of RECIST & Cheson Reporting on Patient Care	Hans-Christoph Becker, MD
10:50	Automating the Assessment of Cancer Treatment Response	Daniel Rubin, MD
11:00	Imaging Tumour Heterogeneity: Facts versus Fiction	Vicky Goh, MD
11:10	Perfusion CT for Precision Response Assessment in Oncology	Dushyant Sahani, MD
11:20	The Delayed Phase of Contrast-enhanced CT imaging in the Abdomen and Pelvis	Benjamin M. Yeh, MD



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### WEDNESDAY JUNE 11, 2014 CONTINUED

11:30	Discussion	
11:45-1:00 pm	Lunch	

#### Image Processing - Geoffrey D. Rubin, MD

1:00	Image Processing Options in 2014	Geoffrey D. Rubin, MD	
1:10	User Validation of 3D software	Laura Pierce, MPA, RT (CT)	
1:20	New Postprocessing Applications Falling from the Clouds	Dominik Fleischmann, MD	
1:30	Building the Infrastructure to create Post-processing Reports based on Referring Clinician Interviews	Daniel Boll, MD	
1:40	Dual Energy CT Angiography: Is Automatic Bone Removal Reliable for Data Interpretation	Elliot Fishman, MD	
1:50	The Retrospective approach to Spectral CT	Jacob Sosna, MD	
2:00	Computer Assisted Lung Nodule Detection Current Status	Geoffrey D. Rubin, MD	
2:10	Performance of PE-CAD in the detection of Pulmonary Embolism missed in clinical practice	Seth Kligerman, MD	
2:20	Computer-aided Liver Volumetry: Performance of a Fully-Automated, Prototype Post-Processing Solution for Whole Organ and Lobar Segmentation Based on MDCT / MR Imaging	Daniel Boll, MD	
2:30	What can CT imaging features say about molecular phenotype? Example in Non-small Cell Lung Cancer	Sandy Napel, Ph.D.	
2:40	Practicing Smart Radiology with Intelligent Workstations	Daniel L. Rubin, MD, MS	
2:50	Discussion		
3:05	Break		

#### **12TH ANNUAL WORKSTATION FACE OFF**

3:30-6:00 pm	For the past eleven years the MDCT Workstation Faceoff has aimed to define the limits of workstation performance. In Year 12 you will observe physician-operators navigate the same diverse clinical datasets to identify key clinical findings. Radiology workstations from the major manufacturers will be tested before our audience of sophisticated physician judges under severe time pressure to demonstrate the workstations and associated image reconstruction software can handle anything our moderator will throw at them	Daniel Boll, MD & Geoffrey Rubin, MD
6:00	End of Tuesday's Session	

**NOTES** (additional notes pages at back of book)



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### **THURSDAY, JUNE 12, 2014**

**NOTES** (additional notes pages at back of book)

#### Practice Management & Economics - Geoffrey D. Rubin, MD

7:00	Training and Education for Super-techs	Dominik Fleischmann, MD	
7:10	Interviewing Referring Clinicians to learn about their needs regarding radiology reports: An Affinity Chart Approach	Daniel Boll, MD	
7:20	Patient-centric CT scanning: Our way to streamline the workflow in a busy CT department	Kenneth Lau, MD	
7:30	Protocol Management: What, Why, How	Sanjay Saini, MD	
7:40	Emerging Standards in CT Nomenclature and Implications for Radiologists	Daniel L. Rubin, MD, MS	
7:50	Medicolegal Issues in CT: How to reduce your malpractice risks & improve your quality of care	Jeffrey B. Mendel, MD	
8:00	Bigger is Better: Making the most of Big Data	Daniel L. Rubin, MD, MS	
8:10	Utilizing Peer review process in a Meaningful way to Raise Quality of Care	Cecelia Brewington, MD	
8:20	Grapevine: Real Time Peer Review Experience at MGH	Sanjay Saini, MD	
8:30	How Much Does that Scan Cost? An Introduction to Activity Bases Costing	Geoffrey D. Rubin, MD	
8:40	Managing Recommendations: Decision Support for Radiologists	Sanjay Saini, MD	
8:50	Nation-wide PQI Project on Image Utilization for the ACR 2015 meeting	Max Wintermark, MD	
9:00	Fundamentals in Controlability: Decision Rights and Perfromance Measures	Geoffrey D. Rubin, MD	
9:10	Discussion		
9:25	Break		



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

### THURSDAY JUNE 12, 2014 CONTINUED Vascular - Dominik Fleischmann, MD

9:40	Current Advances in CTA	Dominik Fleischmann, MD	
10:00	High-resolution Iterative Reconstruction for Vascular Imaging	Michael Bristow, MD	
10:10	Dynamic 4D CT Angiography: Applications and Protocols	Thomas Henzler, MD	
10:20	Reduced Iodine Dose Abdomen CTA: role of kV/keV and CM Concentration	Dushyant Sahani, MD	
10:30	Low-iodine Dose (10-37 ml) CTA of Pulmonary Arteries, Aorta and run-offs in Renal Insufficiency	Jonas Rydberg, MD	
10:40	Centerline stack of the Aorta - Routine MPR projection for CTA of Thoracic and Abdominal Aorta	Jonas Rydberg, MD	
10:50	How Dynamic 4D Bone Subtracted Peripheral CT can replace Dynamic MRI	Thomas Henzler, MD	
11:00	Head Tracked Stereoscopic Visualization of Cardiovascular Diseases	Frandics Chan, MD	
11:10	CTA in the ED- Clinical considerations	Alison G. Wilcox, MD FSCCT	
11:20	Diagnosis and Natural History of Intramural Hematomas Danielle M. Seaman, MI		
11:30	Acute aortic syndrome: Lessons Learned from ECG gated CT Dominik Fleischmann,		
11:40	Discussion		
11:55-1:10 pm	Lunch		

#### Cardiac CT: From Structure to Function to Sub-MilliSievert Heart Scans - U. Joseph Schoepf, MD

		<u> </u>	
1:10	The Brave New World of Cardiac CT - From Structure to Function to Sub-MilliSievert Heart Scans	U. Joseph Schoepf, MD	
1:30	How to Acquire and read a CCTA in 10 minutes or less	Claudio Smuclovisky, MD, FACC, FSCCT	
1:40	Radiation Dose Reduction at Cardiac CT: From Basic to Advanced	U. Joseph Schoepf, MD	
1:50	Cardiology for Radiologists: What you may not know	Claudio Smuclovisky, MD, FACC, FSCCT	
2:00	Cardiac Imaging with 3rd generation dual source CT	Hans-Christoph Becker, MD	
2:10	Prognostic Value of CCTA	Jonathon Leipsic, MD	
2:20	Imaging and Postprocessing workflow for TAVR	Dominik Fleischmann, MD	
2:30	Low-iodine Dose (18-37 ml) Preoperative TAVR CT	Jonas Pudhorg, MD	
2.30	angiography of Aorta and Iliac Arteries in Renal Insufficiency	Jonas Rydberg, MD	
2:40	Cardiac CT for Minimally Invasive Mitral Interventions	Jonathon Leipsic, MD	
2:50	LVAD Assessment on MDCT: Technical Considerations,	Jared Christensen, MD	
2.50	Normal Appearance and Complications	Jarea Christensen, MD	
3:00	Discussion		
3:15	Break		
	A Tiered Cardiac CT Approach to Stable Angina: Efficient use of		
3:30	Calcium Imaging, Coronary Angiography	Koen Nieman, MD	
	and Myocardial Perfusion Imaging		
3:40	Stress Myocardial CTP - Protocols and Evidence	U. Joseph Schoepf, MD	



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### THURSDAY JUNE 12, 2014 CONTINUED

3:50	Dual Energy Ccta with Rapid Kvp Switching- Potential benefits	Jonathon Leipsic, MD	
4:00	Spectral CT: Cardiovascular Applications and Early Clinical Results	Prabhakar Rajiah, MD	
4:10	Dynamic Stress perfusion CT: Absolute Versus Relative Myocardial Blood Flow	Koen Nieman, MD	
4:20	FFRCT for Lesion Specific Ischemia- State of the Science	Jonathon Leipsic, MD	
4:30	On-site Computational Fluid Dynamics: Validation of a Physician Controlled CT-FFR Application	Koen Nieman, MD	
4:40	Cardiac CTA in Infants: Is 3 mSv Low Enough?	Frandics Chan, MD	
4:50	Retrospective ECG-Gating in Pediatric Cardiac CT When Do Indications Justify the Dose	Dianna M. E. Bardo, MD	
5:00	Myocardial Bridging: a New Look on an Old Problem	Frandics Chan, MD	
5:10	Common and Rare Aorta Arch and Pulmonary Sling Anomalies	Bruce Greenberg, MD	
5:20	CCTA Interpretation Made Easy for the Evaluation of Complex Cardiac Surgical Cases	Claudio Smuclovisky, MD, FACC, FSCCT	
5:30	Tips for follow-up CTA in Adults with Congenital Heart Disease	Bruce Greenberg, MD	
5:40	Why so many hospital CCTA Programs go nowhere. Tips and Tricks	Claudio Smuclovisky, MD, FACC, FSCCT	
5:50	Discussion		
6:00	End of Thursday's Session		

<b>Notes</b> (additional notes page	s at back of book)		



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### **2014 WORKSHOPS**

#### **DUAL ENERGY/MULTI-SPECTRAL CT**

Unravel the details of this exciting new method for tissue characterization and reduction of both radiation and iodine exposure. Comparison of implementation methods, processing/display techniques, interpretation and application.

#### Tuesday June 10, 2014

1:00-1:10 pm	Introduction	William P. Shuman, M.D. FACR FSCBTMR FSCCT
1:10-1:30	Virtual non-contrast and lodine Quantification	Jacob Sosna, MD
1:30-1:50	DECT of Liver - focal lesions, fat, and Iron. Workflow considerations	Dushyant Sahani, MD
1:50-2:10	Perfusion CT	Dushyant Sahani, MD
2:10-2:30	DECT for Angiography and plaque evaluation	Thomas Henzier, MD
2:30-2:45	Break	
2:45-3:05	DECT of Gut - perfusion and oral contrast	Benjamin M. Yeh, MD
3:05-3:25	Cardiac DECT - perfusion	Willi A. Kalender, Professor, Dr. med. H.C. Mult. PhD.
3:25-3:45	Cardiac DECT - perfusion	U. Joseph Schoepf, MD
3:45-4:05	DECT of Lung - fibrosis, perfusion, emboli	Robert C. Gilkeson, MD
4:05-4:35	Panel Dicsussion/ Q & A	
4:35	End of Session	

#### TRANSARTERIAL AORTIC VALVE IMPLANTATION (TAVI)

Learn how to reliably and effectively image native and prosthetic aortic valves, identify and characterize important anatomy for TAVI and how to assess for post-procedural complications.

#### Wednesday June 11, 2014

7:30-8:15 am	Intro to TAVR and Buttonology	Jonathon Leipsic, MD
8:15-8:35	MDCT for Sizing and Annular Assessment	Jonathon Leipsic, MD
8:40-10:00	Hands on Case Review	Jonathon Leipsic, MD
10:00-10:15	Coffee Break	
10:15-10:30	MDCT for Access Assessment	Dominik Fleischmann, MD
10:30-11:30	Case Review	Dominik Fleischmann, MD



# ANNUAL INTERNATIONAL SYMPOSIUM ON MULTIDETECTOR-ROW CT

Thank you to our Educational Supporters and Exhibitors

Bracco Diagnostics Inc.
Carestream Health
GE Healthcare
Hitachi Medical Systems America, Inc.
Philips Healthcare
Siemens Medical Solutions
TeraRecon
Toshiba Medical Systems
Vital Images, A Toshiba Medical Systems Group Company







16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### **ISCT LIVE STREAM**

The ISCT is pleased to announce that the MDCT 2014 Symposium will be presented over the internet as a Live Stream on the AuntMinnie.com and ISCT.org websites. Those that can not attend the course in person now have the opportunity to visit the live stream and participate in the course remotely, including the functionality of being able to send questions in real time to session moderators.

MDCT will have a Twitter presence on the live stream page. We encourage you to join the Twitter conversation at the MDCT conference Use: #MDCT2014

#### **CME ON-DEMAND LIBRARY**

Your engagement does not end with the end of the 16th MDCT Symposium. Visit the ISCT "CME On-Demand" library for full access to the lectures with your registration at isct.org.

#### **FUTURE CONFERENCE DATES**

June 7-10, 2015

**Hyatt Regency San Francisco** 

Registration begins June 16th, 2014

June 20-23, 2016

Hyatt Regency San Francisco



16th Annual International Symposium on Multidetector-Row CT

JUNE 9-12, 2014

SAN FRANCISCO

#### FACULTY DISCLOSURES

Postgraduate Institute for Medicine (PIM) assesses conflict of interest with its instructors, planners, managers and other individuals who are in a position to control the content of CME activities. All relevant conflicts of interest that are identified are thoroughly vetted by PIM for fair balance, scientific objectivity of studies utilized in this activity, and patient care recommendations. PIM is committed to providing its learners with high quality CME activities and related materials that promote improvements or quality in healthcare and not a specific proprietary business interest of a commercial interest.

The faculty reported financial relationships or relationships to products or devices they or their spouse/life partner have with commercial interests related to the content of this CME activity. Please see additional handout for more information.

#### DISCLOSURE OF UNLABELED USE

This educational activity may contain discussion of published and/or investigational uses of agents that are not indicated by the FDA. Postgraduate Institute for Medicine (PIM), International Society for Computed Tomography (ISCT), CME Science, Bracco Diagnostics, Carestream Health, GE Healthcare, Bayer Healthcare., Philips Medical Systems, Siemens Medical Solutions, TeraRecon, Toshiba America Medical Systems, and Vital Images do not recommend the use of any agent outside of the labeled indications.

The opinions expressed in the educational activity are those of the faculty and do not necessarily represent the views of PIM, ISCT, CME Science, Bracco Diagnostics, Carestream Health, GE Healthcare, Bayer Healthcare., Philips Medical Systems, Siemens Medical Solutions, TeraRecon, Toshiba America Medical Systems, and Vital Images. Please refer to the official prescribing information for each product for discussion of approved indications, contraindications, and warnings.

#### COMMERCIAL SUPPORT ACKNOWLEDGEMENT

This CME activity is supported by educational grants from

Bracco Diagnostics, Inc. | Carestream Health | GE Healthcare | Philips Healthcare | Siemens Medical Solutions
TeraRecon | Toshiba America Medical Systems | Vital Images, A Toshiba Medical Systems Group Company

This activity is jointly sponsored by Postgraduate Institute for Medicine, ISCT, and CME Science.



### **Special Thanks To Our Exhibitors:**

BRACCO DIAGNOSTICS
CARESTREAM HEALTH
GE HEALTHCARE
HITACHI MEDICAL SYSTEMS AMERICA, INC
PHILIPS HEALTHCARE
SIEMENS MEDICAL SOULTIONS
TERARECON
TOSHIBA MEDICAL SYSTEMS
VITAL IMAGES, A Toshiba Medical Systems Group Company

**#MDCT2014** 

ISCT.org

FUTURE CONFERENCE DATES

June 7-10, 2015 Hyatt Regency San Francisco

June 20-23, 2016 Hyatt Regency San Francisco



## #MDCT2014

## ISCT.org

#### CME On-Demand Library

Your engagement does not end with the end of the 16th MDCT Symposium.

Visit the ISCT "CME On-Demand" library for full access to the lectures with your registration at isct org,

### Future Conference Dates June 7-10, 2015

Hyatt Regency San Francisco Registration begins June 16th, 2014

> June 20-23, 2016 Hyatt Regency San Francisco