

hands-on MRI

Workshop ^{for} Physicists



March 5-7, 2010
Houston, TX

MD Anderson Cancer Center

THE UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER
Making Cancer History®

MTMI

20900 Swenson Dr, Suite 650
Waukesha, WI 53186

PRSR
STANDARD
U.S. POSTAGE
PAID
MILWAUKEE, WI
PERMIT NO. 4185

MTMI

Medical Technology
Management Institute

About the Workshop

The American College of Radiology has established a voluntary certification program for MRI facilities. Clinical medical physicists have an important role to play in assessing the performance of MRI units under this program as well as assisting facilities to implement more advanced applications which will expand their MRI services. This course combines a comprehensive series of lectures on the technology of MRI with six hands-on laboratories to provide practical demonstrations of key concepts and procedures. The University of Texas M.D. Anderson Cancer Center has graciously offered the use of several MRI units for these laboratories. This is a unique opportunity to learn both theory and practical assessment and testing of MRI units, including 3T systems, from an experienced and knowledgeable faculty. Participation will provide the continuing education credit required for supporting certified MRI facilities. It is also useful for preparing to take the subspecialty examination in MRI offered by the ABMP.

Who Should Attend

This seminar is for medical physicists and others wanting to learn more about the technical aspects of MR imaging and those wishing to obtain the continuing education credits required for physicists by the ACR MRI facility certification requirements. It is also appropriate for medical physics students, residents and fellows. Technically oriented radiologists and MRI company personnel may also find it of value.

Workshop Format

The course will be partially conducted in a classroom lecture format and partially in a hands-on laboratory format utilizing MRI units and various phantoms. The course will commence at 3:30 pm Friday and end at 4:30 pm on Sunday. A pizza dinner will be provided on Friday evening as well as a continental breakfast and lunch on both Saturday and Sunday. Attendees will be divided into small groups and rotated through the six 1.5 hour hands-on laboratory demonstrations. A syllabus with supporting material for presentations and labs will be provided.

Educational Objectives

At the completion of this course, participants should have learned:

- ♦ Factors affecting MR image quality, routine and advanced pulse sequences, fast scanning techniques and sources of artifacts.
- ♦ The assessment of MR machine performance utilizing the ACR MRI phantom (including 3T systems).
- ♦ The performance of advanced applications; diffusion/perfusion, MR Angiography and Spectroscopy procedures.
- ♦ Acceptance testing and quality assurance procedures for MRI units, including unique issues with 3T.

Sponsorship

This course is jointly sponsored by the Medical Technology Management Institute (*MTMI*) and the University of Texas, MD Anderson Cancer Center (MDACC). Program directors are J. Ed Barnes, PhD from MTMI and Edward Jackson, PhD from MDACC.

Faculty

Edward Jackson, PhD
Professor of Radiology
UT MD Anderson Cancer Center
Houston, TX

Carl Keener, PhD
Adjunct Asst. Professor
UT, Health Science Center at
San Antonio
Medical & Radiation Physics, Inc.

Geoffrey D. Clarke, PhD
Professor of Radiology
UT, Health Science Center
at San Antonio

J. Ed Barnes, PhD
Executive Director
MTMI
Milwaukee, WI

MD Anderson faculty instructing labs:

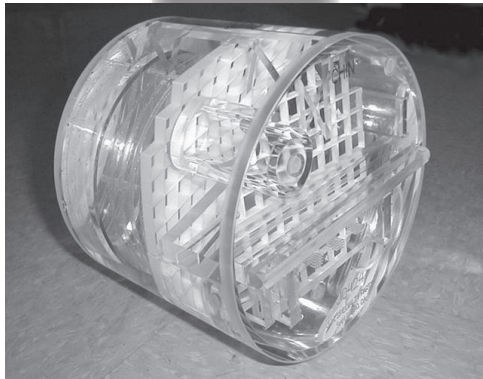
R. Jason Stafford, PhD
Assistant Professor

William Geiser, MS
Medical Physicist

Donna M. Reeve, MS
Senior Medical Physicist

Continuing Education Credit

Approval has been received from CAMPEP for up to 21 hours of Medical Physics Continuing Education Credit (MPCEC) for qualified medical physicists. A certificate documenting attendance will be provided to all participants.



Workshop Schedule

Day One

- ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦
- 3:00 pm *Registration*
- 3:30 pm **Introduction to NMR Physics**E. Jackson
- 4:30 pm **Principles of MR Image Formation**C. Keener
- 5:30 pm *Pizza Break*
- 6:00 pm **Basic MR Pulse Sequences** E. Jackson
- 7:00 pm **Intrinsic MR Image Quality Parameters**.....C. Keener
- 8:00 pm **MR System Hardware**G. Clarke
- 9:00 pm *Adjourn for the Day*

Day Two

- ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦
- 7:00 am *Continental Breakfast*
- 7:30 am **The ACR Accreditation Process & Phantom Review**.....C. Keener
- 8:30 am **ACR MRI QC Guidelines: The Technologist's Role** C. Keener
- 9:00 am **ACR MR Accreditation Program Changes and Updates**E. Jackson
- 9:20 am **Parallel Imaging Techniques and Applications**G. Clarke
- 10:05 am *Informal Discussion and Break*
- 10:20 am **Clinical MRI Applications (including 3T)**.....E. Jackson
- 11:05 am **Advanced Applications (MRS, Diffusion, Perfusion, fMRI)**E. Jackson
- 12:00 pm *Lunch (provided)*
- 12:30 pm **First Three Lab Rotations**
Attendees will be divided in small groups and rotated through six, 1.5 hour laboratory sessions (2nd lab rotation on day three)
- 5:15 pm **Questions and Discussion**Faculty
- 5:30 pm *Adjourn for the Day*

Day Three

- ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦
- 7:00 am *Continental Breakfast*
- 7:30 am **Physicists Quality Control Tests for MR Equipment**G. Clarke
- 8:00 am **MRI Site Planning and Acceptance Testing**E. Jackson
- 8:45 am **Interventional and Treatment Planning Applications Spatial Accuracy**E. Jackson
- 9:15 am *Informal Discussion and Break*
- 9:30 am **MR Angiography Applications**G. Clarke
- 10:15 am **MR Safety and Compatibility (including 3T)**E. Jackson
- 10:50 am **Questions and Discussion**Faculty
- 11:00 am *Lunch (provided)*
- 11:30 am **Second Three Lab Rotations**
- 4:15 pm **Questions and Evaluation**Faculty
- 4:30 pm *Adjourn*

Lab A

Basic Image Quality
Parameters: SNR, Resolu-
tion and Trade-offs

Lab C

Scanning the ACR Phantom
for Accreditation and Daily
QC Purposes

Lab E

Issues Encountered in
3T Imaging and QC

Lab B

MRI Image Artifacts
MR Angiography
MR Spectroscopy

Lab D

RF Coil Testing for QC
Field Homogeneity Testing

Lab F

Softcopy QC and MR
Image Processing

Membership

Membership in the Medical Technology Management Institute includes:

- ◆ discounts on MTMI services
- ◆ member newsletter
- ◆ web access to replace certificates
- ◆ yearly transcripts
- ◆ special benefits throughout the year exclusive to members

Joining MTMI with this registration qualifies you for the member discount. Indicate your interest in membership on the registration form or call MTMI. Annual membership dues for physicists is \$59. Discount effective immediately.

Registration

Because of the hands-on format, enrollment will be limited. You are strongly encouraged to register early. Slots will be filled in the order in which registration/payment are received.

To register for this course, go to www.mtmi.net or complete the registration form below and send it with your tuition to **MTMI**, or register by telephone, 800-765-6864 or fax, 262-717-9171 using MasterCard or Visa. Tuition for the course is \$1050 per person (**MTMI** members \$1015). Refunds, minus a \$50 administration fee, will be granted for cancellations received prior to 10 days before the course. Cancellations received within 10 days of the course will receive a credit toward a future **MTMI** program, minus the \$50 processing fee. No refunds will be made after the course.

MTMI reserves the right to cancel any scheduled program because of low advance registration or other reasons. **MTMI's** liability is limited to a refund of any program tuition paid.

Membership

Workshop location:

MD Anderson Cancer Center
1515 Holcombe Blvd.
Houston, TX 77030

Accommodations:

Rotary House International
(on the MD Anderson Campus)
1600 Holcombe Blvd.
Houston, TX 77030
713-790-1600

www.mdanderson.org/departments/rotaryhouse

Room Rate: \$105 single, \$111 double
Make reservations by 2/12/10 and
reference code MTMI - limited availability.

Alternative site: Marriott Medical Hotel
MD Anderson Cancer Center
1220 Holcombe Boulevard
Houston, TX 77030
713-796-0080



MD Anderson Cancer Center is a very large facility. If you feel you may need assistance walking to the various sites during the workshop, please call MTMI at 800-765-6864 to make arrangements.

Registration Form

Hands-on MRI Workshop for Physicists

Houston, TX - Mar 5-7, 2010

Please Print Clearly - This is how your name will appear on your certificate.

Name: _____ degree/title _____

Home Address: _____ City: _____

State: _____ Zip code: _____ e-mail _____

Day phone () _____ Eve. phone () _____

e-mail address used only for confirmation of this registration and notification of future programs

I am a medical physicist; MRI technologist; Biomedical Engineer; other (specify) _____

I work in the following areas: Mammography, CT, MRI, Ultrasound, Nuc Med, Rad Therapy, XR.

Please enclose payment to MTMI: \$1050

MTMI member discount: \$1015

Yes, I want to become an MTMI member! \$59 (discount effective immediately)

Total enclosed:
\$ _____

Credit Card Number _____ Master Card Visa

Expiration Date: _____ Signature _____

Return to: **MTMI** ♦ 20900 Swenson Dr., Suite 650 ♦ Waukesha, WI 53186

800-765-**MTMI**(6864) or 262-717-9797 or fax 262-717-9171 or e-mail custservice@mtmi.net

Your satisfaction with **MTMI** programs is guaranteed, a guarantee we are confident you won't need to use.