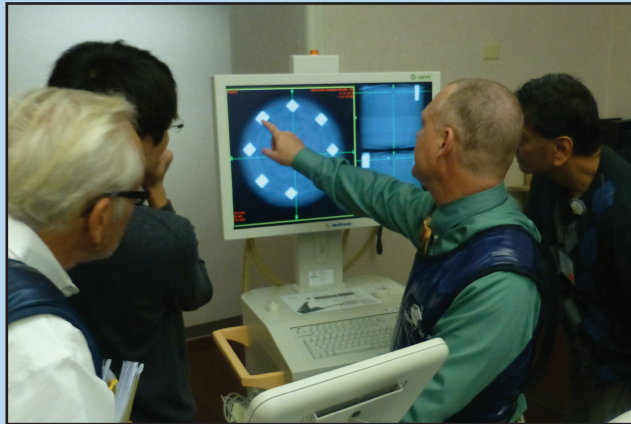


# Hands-on Fluoroscopy Testing Workshop



2-day Workshop  
February 24-25, 2018  
in Wichita, KS

**4.5 SAMs  
offered**

## **MTMI**

Medical Technology  
Management Institute

*A continuing education division of*  
**HERZING UNIVERSITY**

# Workshop Schedule

## ~~~~ Day One ~~~~~

- 7:15 am Registration and Coffee
- 8:00 am Review of Fluoroscopic Systems:  
 Configuration/Performance Characteristics (SAM) ... Thomas
- Conventional
  - Vascular
  - Mobile/OR
  - Hybrid room/procedures
- Image Generation Technology
- Digital flat panel units
  - Analog image intensifiers
- 9:30 am Informal Discussion and Break
- 9:50 am Fluoroscopic Image Quality (SAM) ... Pfeiffer
- Performance criteria
  - Techniques for measuring fluoroscopic image quality
  - Variation by manufacturer
  - Expected Performance
  - Acceptance testing vs annual testing
  - Imaging protocols
- 10:50 am Fluoroscopy Image Post Processing ... Rebet
- Advanced imaging techniques
- 11:50 am Questions and Discussion
- 12:00 pm Lunch (provided)
- 12:45 pm 3D Rotational Angiography ... Rebet
- 3D acquisition
  - Workstation post processing
  - Performance testing
  - Post processing
  - Configuration
  - Dose measurements
- 1:15 pm The Annual Physicist Fluoroscopy Unit Performance Evaluation (SAM) ... Thomas
- Exposure rate measurements
  - Validating dose indices / DAP, CAK
  - Collimation/Alignment
  - Measuring patient exposure
  - Image quality testing
- 2:15 pm Radiation Safety of Fluoroscopy Systems ... Colby
- Primary and scatter
  - Personnel monitoring
  - Shielding of systems and personnel
- 3:00 pm Informal Discussion and Break
- 3:15 pm Managing Patient Dose (SAM) ... Vanderhoek
- Factors affecting patient dose
  - Optimization of input air kerma rate to image receptor
  - Monitoring and tracking patient doses
  - Trigger levels, sentinel events, QA-PA program
  - Dose rate limits
- 4:15 pm Biological Radiation Responses ... Pfeiffer
- CDC table of biological responses
- 4:45 pm Training Fluoroscopy Users ... Vanderhoek
- Training regulations and requirements
  - Fluoroscopy safety class with real-time patient and staff dosimetry
  - Training resources
  - Suggested training program
- 5:15 pm Introduction to Lab Sessions
- 5:30 pm Questions and Discussion
- 5:45 pm Adjourn for the Day

## ~~~~ Day Two ~~~~~

- 7:00 am Coffee
- 7:30 am Lab Session One
- 8:40 am Lab Session Two
- 9:50 am Informal Discussion and Break
- 10:10 am Lab Session Three
- 11:20 am Lunch (provided)
- 12:00 pm Lab Session Four
- 1:10 pm Lab Session Five
- 2:20 pm Informal Discussion and Break
- 2:40 pm Lab Session Six
- 3:50 pm Discussion and Wrap - Up
- 4:20 pm Adjourn Workshop

~ schedule subject to change ~

### Labs:

Lab A: Mini-C arm/C arm Fluoroscopy Units  
(GE/OEC and Hologic)

Lab B: 0-arm Fluoroscopy Unit (Medtronic)

Lab C: 3D Rotation Angiography Units  
(Philips and Siemens)

Lab D: Undertable Unit (Siemens)

Lab E: Overtable Unit (Siemens)

Lab F: Vascular Lab - Biplane (GE)

## About this Workshop

The performance of fluoroscopy systems has become more sophisticated as the technology continues to evolve. The radiation dose from these systems can be significant and requires continued management and control. The medical physicist plays a key role in assuring the fluoroscopy systems are performing well and radiation dose to the patient and personnel is managed. This workshop will provide an in-depth review of state-of-the-art fluoroscopic equipment technology and appropriate methods of assessing image quality and machine performance. Criteria for assessing patient exposure levels, potential biological responses and management of radiation safety will also be addressed. Participants will participate in hands-on demonstrations of testing and evaluation of a variety of fluoroscopy systems from several manufacturers conducted by a well-qualified and experienced medical physics faculty.

## Who Should Attend

Medical physicists interested in an in-depth review of the physics of fluoroscopy systems will find this workshop very beneficial. The workshop will also be useful for physics assistants, medical physics residents and students, as well as vendor personnel working with these systems. Experienced QC technologists looking for more understanding of fluoroscopic QA testing may also find the workshop of value.

## Workshop Format

The first half of the workshop is a comprehensive review of the physics of clinical fluoroscopy systems presented in didactic format with slides and a printed and electronic syllabus. The second half of the workshop will be hands-on laboratory sessions of testing procedures on a variety of fluoroscopic systems from various manufacturers including GE, Siemens, Philips, Medtronic and Hologic. Attendees will be divided into small groups and rotated through all six hands-on lab sessions.

## Educational Objectives

*Participation in this workshop will provide:*

- A review of current fluoroscopy system technology.
- An understanding of techniques for assessing image quality.
- Insight into fluoroscopy image post-processing and advanced imaging techniques.
- Procedures for conducting and evaluating the annual fluoroscopy unit inspection.
- Techniques for insuring adequate radiation safety for fluoroscopy systems.
- How to measure, monitor and track patient radiation doses.
- Hands-on demonstrations of testing a variety of fluoroscopy systems typically found in a hospital setting.



## Faculty

### Program Director

Jerry A. Thomas, MS  
Coordinator Radiologic Physics  
Via Christi Health

Doug Pfeiffer, MS  
Medical Physicist/  
Radiation Safety Officer  
Boulder Community Health

Matt Vanderhoek, PhD  
Imaging Physicist  
Henry Ford Health System

Brent Colby, MS  
Medical Physicist  
Sanford Health

Alan Cebula, MS  
Diagnostic Medical Physicist  
Via Christi Health

Aya Rebet  
GE Healthcare

## Continuing Education

This program provides up to 15.77 hours of Medical Physics Continuing Education Credit (MPCEC) for qualified medical physicists. A certificate documenting attendance will be provided to all participants.

### SAMs

This activity includes 4.5 approved SAM credits for Physicists. To cover approval, tracking and reporting costs, MTMI charges \$30 for each SAM credit awarded. SAM credits may be purchased in advance or at the activity.



Category A/A+ CE credit is pending approval by the ASRT. An application for 14.5 hours of credit for radiologic technologists recognized by the ARRT and various licensure states has been filed.

## Workshop Location and Accommodations

Ascension Via Christi Hospital St. Francis  
929 N. St. Francis  
Wichita, KS 67214

Hyatt Regency Wichita  
400 W. Waterman  
Wichita, KS 67202

Front Desk: 316-293-1234

the Hyatt will provide  
complimentary shuttle service  
to/from workshop location  
~ lunch provided each day ~

Reservations: 888-421-1442 Identify yourself as:  
MTMI- Hands On Fluoroscopy  
Make reservations by: 2/2/2018  
Rate: \$138.00 + tax per night  
(see website for more details)

## Registration

To register for this seminar:

- 📄 go to [www.mtmi.net](http://www.mtmi.net) or
- ✉ complete the registration form attached and
- ✉ mail it with your tuition to MTMI, or
- ☎ call (800) 765-6864 using MasterCard or Visa, or
- 📠 fax the form to (414) 238-2740 w/credit card info

- Refunds, minus a \$50 processing fee, will be granted for cancellations received prior to 10 days before the program.
- Cancellations received within 10 days of the program will receive a credit toward a future MTMI seminar, minus the \$50 processing fee. No refunds will be made after the program.

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 tuition fee paid.

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



**Registration Form:**

**Hands-on Fluoroscopy Testing Workshop**

Wichita, KS - Feb 24-25, 2018

Please print clearly - this is how your name will appear on your certificate.

Name: \_\_\_\_\_ degree/title: \_\_\_\_\_

Home Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip code: \_\_\_\_\_

\*e-mail: \_\_\_\_\_ \* registration confirmation will be sent to this e-mail address -PRINT CLEARLY

Day phone: ( ) \_\_\_\_\_ Eve. phone: ( ) \_\_\_\_\_ FAX: ( ) \_\_\_\_\_

I work in the following:  Mammography,  CT,  MRI,  X-ray,  Ultrasound,  Nuc Med,  Rad Therapy,  Brachytherapy



Medical Technology  
Management Institute

Total: \$ \_\_\_\_\_



- \$850  Please enclose payment to MTMI
- \$815  MTMI member discount price
- \$135  add all 4.5 SAMs
- \$65  Yes, I want to be an MTMI member!  
(discount effective immediately)

Credit Card # \_\_\_\_\_  MasterCard  Visa  Discover  AMEX  Check

expiration date: \_\_\_\_\_ 3 digit code: \_\_\_\_\_ Signature: \_\_\_\_\_

Return to: MTMI ♦ W140 N8917 Lilly Road ♦ Menomonee Falls, WI 53051  
800-765-MTMI(6864) or 262-717-9797 for FAX 414-238-2740 or email [custservice@mtmi.net](mailto:custservice@mtmi.net)  
or register online at [www.mtmi.net](http://www.mtmi.net)