



# Saturday

104<sup>th</sup> Scientific Assembly and Annual Meeting  
November 25-30 | McCormick Place, Chicago

**RSNA® 2018**  
**TOMORROW'S**  
**RADIOLOGY TODAY**



SPPH01

### AAPM/RSNA Physics Tutorial Session 1

Saturday, Nov. 24 12:00PM - 2:00PM Room: E351

**BQ** **GI** **MR** **NM** **PH**

AMA PRA Category 1 Credits™: 2.00

ARRT Category A+ Credits: 2.25

**FDA** Discussions may include off-label uses.

#### Participants

Thaddeus A. Wilson, PhD, Madison, WI (*Moderator*) Nothing to Disclose

#### Sub-Events

##### SPPH01A PET/CT Introduction and Clinical Applications

Participants

Osama R. Mawlawi, PhD, Houston, TX (*Presenter*) Research Grant, General Electric Company; Research Grant, Siemens AG

**For information about this presentation, contact:**

omawlawi@mdanderson.org

#### LEARNING OBJECTIVES

1) Describe the latest advances in hardware and software for PET/CT imaging. 2) Explain how these advances affect PET image quality and quantification. 3) Describe novel PET/CT clinical applications using new radiopharmaceuticals. 4) Discuss future developments and clinical applications of PET/CT imaging.

##### SPPH01B PET/MR Introduction and Clinical Applications

Participants

Robert A. Pooley, PhD, Jacksonville, FL (*Presenter*) Nothing to Disclose

**For information about this presentation, contact:**

pooley.robert@mayo.edu

#### LEARNING OBJECTIVES

1) Describe reasons for combining PET and MR into a single scanner. 2) Explain how PET instrumentation can affect MR, and how MR instrumentation can affect PET. 3) Identify PETMR protocol acquisition strategies. 4) Describe clinical applications of PETMR.

##### SPPH01C Quantitative SPECT

Participants

Benjamin M. Tsui, PhD, Baltimore, MD (*Presenter*) Researcher, Koninklijke Philips NV; License agreement, General Electric Company;

**For information about this presentation, contact:**

btsui1@jhmi.edu

#### LEARNING OBJECTIVES

1) Define quantitation and quantitative SPECT. 2) List and describe the image degrading factors of SPECT. 3) Describe methods to compensate for the SPECT image degrading factors. 4) Assess quality and quantitative accuracy improvements of quantitative SPECT images. 5) Apply quantitative SPECT to clinical practices.

#### ABSTRACT

Recent development and application of quantitative SPECT have provided significantly improved image quality and quantitative accuracy that aid in clinical diagnosis and treatment of diseases. In this educational course, we will define quantitation, quantitative SPECT and its goals. The image degrading factors of SPECT will be listed and described. Methods that compensates for the image degradation factors will be presented and explained. Examples of improvements in image quality and quantitative accuracy in various clinical applications will be presented.

**Active Handout: Benjamin M. Tsui**

[http://abstract.rsna.org/uploads/2018/18000347/RSNA-QuantitativeSPECT\\_HandoutSPPH01C.pdf](http://abstract.rsna.org/uploads/2018/18000347/RSNA-QuantitativeSPECT_HandoutSPPH01C.pdf)

SPGW01

## NIH Grantsmanship Workshop

Saturday, Nov. 24 1:00PM - 5:00PM Room: E253AB

RS

AMA PRA Category 1 Credits™: 4.00  
ARRT Category A+ Credit: 0

### Participants

Gayle E. Woloschak, PhD, Chicago, IL (*Moderator*) Nothing to Disclose

### LEARNING OBJECTIVES

1) Gain greater understanding of the NIH grants process: a. Understand the process for preparing a research or training grant application. b. Learn the elements of a competitive grant application. 2) Gain insight into the new features of the NIH review process. 3) View the review process in action through a mock study section.

### Sub-Events

#### SPGW01A Welcome and Introductory Remarks

Participants

Gayle E. Woloschak, PhD, Chicago, IL (*Presenter*) Nothing to Disclose

### LEARNING OBJECTIVES

View Learning Objectives under main course title.

#### SPGW01B Preparing an R01 Research Application

Participants

Maryellen L. Giger, PhD, Chicago, IL (*Presenter*) Stockholder, Hologic, Inc; Shareholder, Quantitative Insights, Inc; Shareholder, QView Medical, Inc; Co-founder, Quantitative Insights, Inc; Royalties, Hologic, Inc; Royalties, General Electric Company; Royalties, MEDIAN Technologies; Royalties, Riverain Technologies, LLC; Royalties, Mitsubishi Corporation; Royalties, Canon Medical Systems Corporation

**For information about this presentation, contact:**

m-giger@uchicago.edu

### LEARNING OBJECTIVES

View Learning Objectives under main course title.

#### SPGW01C Preparing K Awards

Participants

Ruth C. Carlos, MD, MS, Ann Arbor, MI (*Presenter*) Nothing to Disclose

### LEARNING OBJECTIVES

View Learning Objectives under main course title.

### Honored Educators

Presenters or authors on this event have been recognized as RSNA Honored Educators for participating in multiple qualifying educational activities. Honored Educators are invested in furthering the profession of radiology by delivering high-quality educational content in their field of study. Learn how you can become an honored educator by visiting the website at: <https://www.rsna.org/Honored-Educator-Award/> Ruth C. Carlos, MD, MS - 2015 Honored Educator Ruth C. Carlos, MD, MS - 2018 Honored Educator

#### SPGW01D Clinical Trials in Applications

Participants

Michael W. Vannier, MD, Crete, IL (*Presenter*) Nothing to Disclose

### LEARNING OBJECTIVES

View Learning Objectives under main course title.

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## **SPGW01E Program Perspectives**

Participants

Manana Sukhareva, PhD, Bethesda, MD (*Presenter*) Nothing to Disclose

### **LEARNING OBJECTIVES**

View Learning Objectives under main course title.

### **ABSTRACT**

## **SPGW01F The Process of Review**

Participants

Gayle E. Woloschak, PhD, Chicago, IL (*Presenter*) Nothing to Disclose

### **LEARNING OBJECTIVES**

View Learning Objectives under main course title.

## **SPGW01G Mock Study Section**

Participants

Gayle E. Woloschak, PhD, Chicago, IL (*Presenter*) Nothing to Disclose

Maryellen L. Giger, PhD, Chicago, IL (*Presenter*) Stockholder, Hologic, Inc; Shareholder, Quantitative Insights, Inc; Shareholder, QView Medical, Inc; Co-founder, Quantitative Insights, Inc; Royalties, Hologic, Inc; Royalties, General Electric Company; Royalties, MEDIAN Technologies; Royalties, Riverain Technologies, LLC; Royalties, Mitsubishi Corporation; Royalties, Canon Medical Systems Corporation

Ruth C. Carlos, MD, MS, Ann Arbor, MI (*Presenter*) Nothing to Disclose

Michael W. Vannier, MD, Crete, IL (*Presenter*) Nothing to Disclose

Elizabeth A. Krupinski, PhD, Atlanta, GA (*Presenter*) Nothing to Disclose

### **For information about this presentation, contact:**

ekrupin@emory.edu

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### **LEARNING OBJECTIVES**

1) Understand how an NIH review session takes place.

### **Honored Educators**

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## **SPGW01H Questions to the Faculty**

Participants

Gayle E. Woloschak, PhD, Chicago, IL (*Presenter*) Nothing to Disclose

### **LEARNING OBJECTIVES**

View Learning Objectives under main course title.

## **SPGW01I Summary**

Participants

Gayle E. Woloschak, PhD, Chicago, IL (*Presenter*) Nothing to Disclose

### **LEARNING OBJECTIVES**

View Learning Objectives under main course title.

## **SPGW01J Adjourn**

SPPH02

## AAPM/RSNA Physics Tutorial Session 2

Saturday, Nov. 24 2:15PM - 4:15PM Room: E351

**NM** **PH**

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ARRT Category A+ Credits: 2.25

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### Participants

Thaddeus A. Wilson, PhD, Madison, WI (*Moderator*) Nothing to Disclose

### Sub-Events

#### SPPH02A The Nuts and Bolts of Dosimetry in Nuclear Medicine and its Application

##### Participants

Michael G. Stabin, PhD, Nashville, TN (*Presenter*) Software, Vanderbilt University

### LEARNING OBJECTIVES

1) Understand current models and methods used in radiation dosimetry for radiopharmaceuticals. 2) Understand methods for new drug approval with the FDA. 3) Understand current experience with radiopharmaceuticals used in therapy: types of compounds, clinical experience, biological effects.

#### SPPH02B Theranostics Introduction and Applications

##### Participants

Hossein Jadvar, MD, PhD, Pasadena, CA (*Presenter*) Nothing to Disclose

### For information about this presentation, contact:

jadvar@med.usc.edu

### LEARNING OBJECTIVES

1) Define theranostic. 2) Review the history and current clinical applications of theranostics. 3) Describe potential outlook for theranostics in the era of precision medicine.

### ABSTRACT

Advances in the understanding of cancer biology, developments in diagnostic technologies, and expansion of therapeutic options have all contributed to the concept of personalized cancer care. Theranostics is the systematic integration of targeted diagnostics and therapeutics. The theranostic platform includes an imaging component that 'sees' the lesions followed by administration of the companion therapy agent that 'treats' the same lesions. This strategy leads to enhanced therapy efficacy, manageable adverse events, improved patient outcome, and lower overall costs. In this lecture, I review the the concept, history, recent developments, current challenges, and outlook for radiotheranostics (use of radionuclides in theranostics) in the management of patients with cancer (Jadvar H et al. Radiotheranostics in Cancer Diagnosis and Management. Radiology 2018; 286:388-400).