

Featured Speaker

Emanuel Kanal, MD, FACR, FISMRRM, MRMD/MRSE, AANG

Director, Magnetic Resonance Services
Professor of Radiology and Neuroradiology
University of Pittsburgh Medical Center

Educational Objectives & Course Description

20 Hour Basic MR Physics: July 16-18

This three day, intensive educational conference is designed for technologists who are preparing for the advanced MR registry exam or those simply desiring to refresh/enhance their working knowledge of MR physics. All lectures will be given by **Dr. Emanuel Kanal**. Dr. Kanal is known for bringing the complex and often confusing world of MR physics into everyone's reach. Dr. Kanal uses his own custom-developed interactive computerized graphic MR tutorial software to complement his non-stop, energetic, yet easy going teaching style. Problem solving approaches are incorporated throughout the meeting to demonstrate how to clinically apply the topics and knowledge being covered. You will find yourself understanding MR physics concepts clearly and in plain English - perhaps for the first time ever. Concepts covered during the 20 hour basic course include (among others):

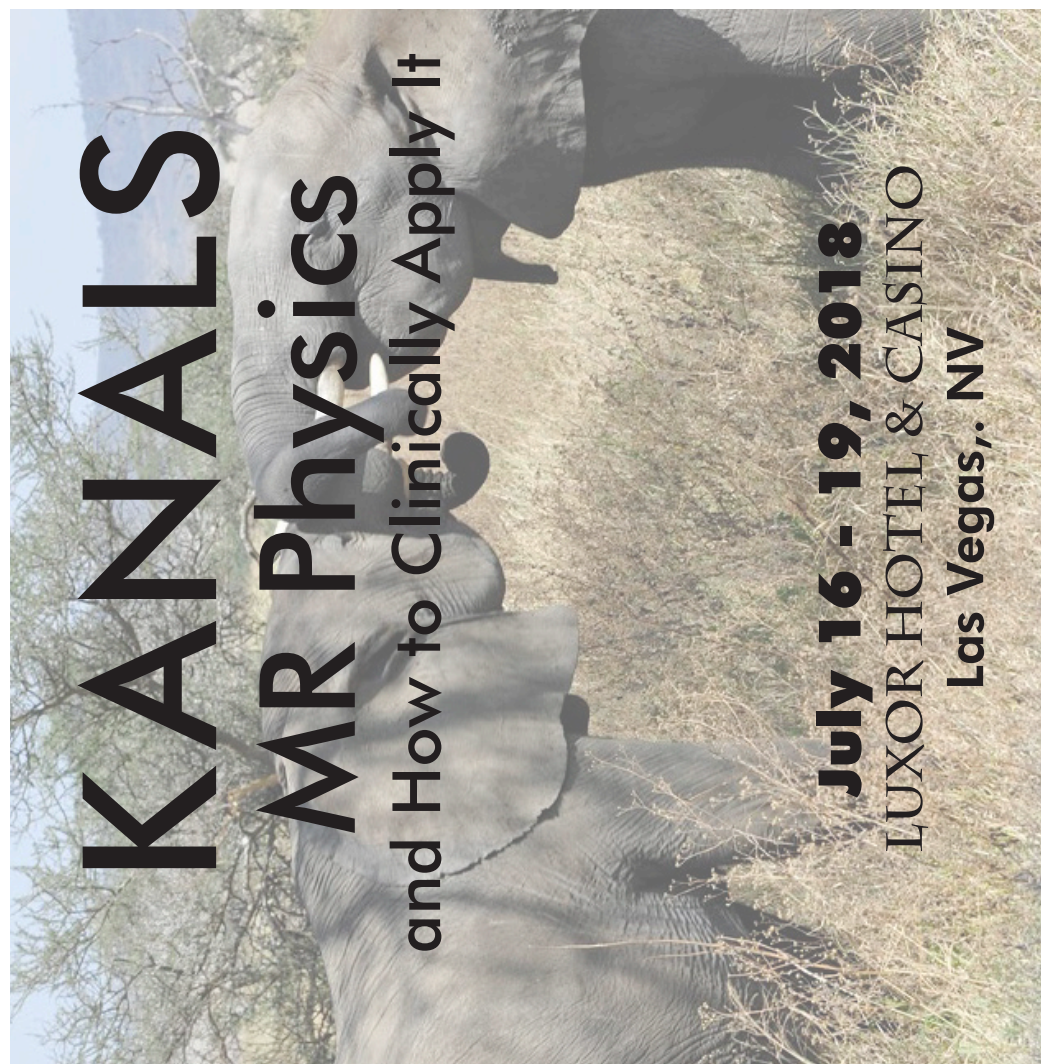
- Static magnetic field strength
- TR, TE, T1, T2 & Proton Density
- T2*, TI
- RF excitation flip angle
- Number of excitations (NEX)
- Image Production & Acquisition
- Fat Saturation
- 2D & 3D Fourier transform techniques
- Partial saturation techniques
- Inversion recovery sequences
- Spin echo imaging sequences
- Relaxivity
- Field Distortion
- Chemical saturation
- Gradient echo imaging sequences
- Chemical shift artifact
- Phase & Frequency Encoding
- Slice selection
- Gradient magnetic fields
- Ernst Angle
- Partial Fourier & NEX imaging
- Fast spin echo & other fast techniques
- K-space
- MRA and MRS Principals

The interaction of the all these parameters with slice quantity, imaged volume, scan time, image signal, contrast and resolving power is stressed throughout the discussions.

9.5 Hours Advanced Topics & Intracranial Gadolinium Accumulation Update: July 18-19

This 9.5 hour optional session will be focused on more advanced topics, including MR angiography, diffusion weighted MR imaging, perfusion weighted MR imaging, and MR spectroscopy. This session will also include a special 1.5 hour presentation on the recent concerns regarding intracranial gadolinium accumulation even in patients with normal renal function. So much has changed in this area in the past few months, including different reactions and guidances by different regulatory agencies around the world. This is a critical topic that affects us all, and Dr. Kanal will provide a state of the art update at this meeting as to where things stand on this issue and how it affects our daily MR practice.


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P.O. Box 25909
Eugene, OR 97402



Note: If you cannot attend, please pass this brochure to an interested colleague.



KANALS

MR Physics

and How to Clinically Apply It
July 16 - 19, 2018

Offers up to 29.5 hours of Technologist Category A CE Credit

2 Individual Sessions
20 hrs. Basic Physics
9.5 hrs. Advanced Topics & Intracranial Gadolinium Accumulation Update

Designed to assist technologists preparing for the advanced MR registry exam and/or to enhance their working knowledge of MR physics and how to clinically apply it.

ATTENDEE COMMENTS:

"Absolutely the BEST educational seminar I have EVER attended."

"I most enjoyed the clinical correlation and pathology slides."

"I wish I could put this information in a bottle and pour it out again and again."

LUXOR CASINO & HOTEL
LAS VEGAS, NV

Presented by:

Emanuel Kanal, MD, FACR, FISMRRM, MRMD, AANG

and:

Northwest Imaging Forums, Inc.

Accreditation

This complete 4 day program has been submitted for approval of **29.5 hours of Category A CE credit** (evidence of continuing education). The Basic Physics session (July 16-18) will offer up to 20 credit hours. The Advanced Physics session (July 18-19) will offer up to 9.5 credit hours. In order to obtain the maximum credit hours offered (29.5), you must attend ALL presentations on all four days. Guidelines approved for verifying attendance **for each lecture** will be followed and a certificate of attendance will be issued to each qualified attendee by Northwest Imaging Forums, Inc. and mailed after the course.

LUXOR Hotel & Casino

3900 S Las Vegas Blvd, Las Vegas, NV 89119

We will meet in the fabulous LUXOR Hotel & Casino, the thirty story glass "Pyramid" on the famous Las Vegas strip. Located just 2.5 miles from McCarran International Airport, this elegant, 4,300 room hotel is the perfect setting for both business and pleasure. With eight restaurants, showroom entertainment, a 120,000 square foot casino and many attractions such as The Titanic Show & Museum, there is much to see and do.

29.5 Hour MR Physics Format - All lectures will be given by Dr. Kanal -

Monday 7/16 (8.0 Hours)

- 7:00** Registration Desk Opens - Coffee, Tea & Pastries
8:00 Opening Announcements - Matt Wilson
8:10 Nuclear Magnetic Resonance
- Nuclei, hydrogen protons, magnetism, resonance, RF excitation
9:00 Basic MRI
10:00 Coffee Break
10:20 Proton Density, T1 and T2
11:10 TR and TE
12:00 Lunch on Your Own
1:15 Spin Echoes and the 180 Degree Pulse
2:05 MR Imaging Review
2:55 Soft Drink Break
3:15 Gradient Echo Imaging - Part I
- Underlying concepts (how it is similar & different from spin echo)
4:05 Gradient Echo Imaging - Part II
- Flip Angle (Ernst angle & relationship between TR and flip angle)
5:00 End of Session

Tuesday 7/17 (7.0 Hours)

- 7:30** Registration Desk Opens - Coffee, Tea & Pastries
8:00 Announcements - Matt Wilson
8:05 Gradient Echo Imaging : Part III - TE versus T2*
8:55 Review of Image Production & Acquisition: Part I
- Gradients, spatial localization, slice selection, phase encoding, and frequency encoding part I
9:45 Coffee Break
10:05 Review of Image Production & Acquisition : Part II
- Phase encoding part II, frequency encoding part II, echo sampling / readout
10:55 Review of Image Production & Acquisition : Part III
- Fourier transform, spatial resolution / temporal dependencies
11:45 Lunch on Your Own
1:00 Fast Imaging Techniques - Playing with k-space
- Partial echo, partial NEX, introducing fast spin echo imaging
1:50 Fast, or Turbo, Spin Echo : Part I
- Underlying concepts, role of echo train length, effective TE, limitations
2:40 Fast, or Turbo, Spin Echo : Part II - Echo Planar Imaging
- Clinical application, EPI utilization and limitations
3:30 End of Session (topics & format subject to change)

Room Reservations: We have been given special reduced sleeping room rates at the Luxor Hotel and Casino of \$65.00 plus resort fee/taxes all conference dates. You may reserve your room using the following link: <https://aws.passkey.com/go/SKAN0718LX> or you can contact the hotel by dialing toll free 800-926-4737. Attendees must identify their affiliation with Kanal's MR Physics and Northwest Imaging Forums (Group Code: Kanal's MR Physics). Cutoff date is 06/18/18 or until room block becomes full. Please call or email us if you have any questions.

IMPORTANT LUXOR NOTE: The meeting will be held in the Egyptian Ballroom ground level West Tower. When reserving a Luxor sleeping room, please consider requesting to be placed in the West Tower.

Cancellation Policy

All cancellation requests must be in writing.

- 1) Cancellations received on or before 06/22/18 will receive a full refund. Those received after 06/22/18 but through 07/06/18 are subject to a 25% service charge.
- 2) No credit or refunds are available on or after 07/07/18. **No exceptions will be made.**
- 3) In the event that any situation beyond the control of NWIF makes it impossible to conduct the meeting as advertised, each paid attendee will receive a voucher to attend a future NWIF meeting.

Wednesday 7/18 (5.0 Hours)

- 7:30** Registration Desk Opens - Coffee, Tea & Pastries
8:00 Announcements - Matt Wilson
8:05 Fat Saturation and the Chemical Shift Artifact
8:55 Inversion Recovery : Part I - Underlying concepts, role of TI, TE, & TR
9:45 Coffee Break
10:05 Case Review
10:55 MR Contrast Agents - Mechanism of action, distribution, T2* shortening, time & concentration considerations, pulse sequence design
12:10 Interactive Session with Dr. Kanal
12:40 End of "Basic MR Physics" Program
(topics & format subject to change)

9.5 Hour Advanced Topics & MR Safety / Intracranial Gadolinium Accumulation Update

Wednesday 7/18 (4.5 Hours)

- 1:45** MR Angiography
- Flow & time of flight effect
- Affects of : TR, TE, flip angle, slice thickness, slab thickness
- 2D vs. 3D Fourier transform, saturation pulses, contrast enhanced MRA
- Clinical applications and case studies
2:35 High Relaxivity Contrast Agents
- How are they different and how do we use them?
3:50 Coffee Break
4:10 Sequence Optimization with High Relaxivity
4:40 Intracranial gadolinium accumulation and GBCA: 2018 update
5:55 End of Session

Thursday 7/19 (5.0 Hours)

- 7:30** Registration Desk Opens - Coffee, Tea & Pastries
8:00 Announcements - Matt Wilson
8:05 The ABMRS - What it means for you
8:35 Diffusion Weighted Imaging - What it is, how it works, how do we use it
9:50 Coffee Break
10:10 Perfusion Weighted Imaging - What it is, how it works, how do we use it; putting DWI/PWI together clinically; DWI/PWI matches & mismatches
11:25 Magnetic Resonance Spectroscopy - Basic concepts, clinical applications & case studies
12:40 End of Conference

Written Comments from Previous Attendees

"MRI made easy and fun!"

"Dr. Kanal has an excellent way of making the hardest topics understandable."

"I have learned more in four days than in 2.5 years!"

"Now I finally understand K-space!"

"The use of analogies was powerful, even artful."

"Every question was addressed thoroughly and completely."

Registration Form (Please Print - this form may be copied)

Please Note: - **Early Fee** is payment received on or before 06/22/18
- **Standard Fee** is payment received after 06/22/18 through 07/06/18
- **Late Fee** is payment received on or after 07/07/18

• **"Basic MR Physics" only : July 16-18**

All Attendees : Early Fee \$680* Standard Fee \$700* Late Fee \$720*

• **"Advanced Topics & MR Safety / Intracranial Gadolinium Accumulation Update" only : July 18-19**

All Attendees: Early Fee \$355* Standard Fee \$375* Late Fee \$395*

• **Best Value - Attend Both Programs : July 16- 19**

All Attendees: Early Fee \$795* Standard Fee \$815* Late Fee \$835*

Registration Form (Please Print - this form may be copied)

Registration is also available online at: www.nwforums.com
Note — Registration is confirmed and processed only when payment is received.

Name (print) _____

Note: Email address is required for confirmation purposes.

Email Address (Print) _____

Facility _____

The address below is Work Home (Circle One)

Street _____

City _____ State _____ Zip code _____

Day Phone (_____) _____ Work Home (Circle One)

I will attend: (Circle One) Basic: July 16 - 18 Advanced: July 18 - 19 Both Programs

Payment enclosed or amount charged to credit card. \$ _____

Charge to: VISA MasterCard American Express Discover

Card Number _____ Exp. Date _____

3 Digit Credit Card Security Code (found on back of card) _____

Name on Card (print) _____

Card holder Signature (required) _____

Checks payable / send registration form to:



Northwest Imaging Forums, Inc.

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Kanal-18

Please contact us to register or with questions:

Phone: (888) 683-4930 Toll Free 9am - 5pm M-F Eastern Time

(541) 683-4930 Direct 9am - 5pm M-F Eastern Time

Fax: (541) 683-8499 24 Hours a Day

E-mail: registration@nwforums.com Web site: www.nwforums.com