



Workshop on MRI SAFETY: UPDATE, PRACTICAL INFORMATION, AND FUTURE IMPLICATIONS

5 and 6 November 2005

Hilton McLean Tyson's Corner, McLean, Virginia, USA

Program

Friday, 4 November

1700-1900 Registration, Poster Set-up

Saturday, 5 November

0730-0830 Registration and coffee reception

0830-0840 Welcome and Introduction, Frank Shellock, PhD and Daniel J. Schaefer, PhD

SPECIAL FOCUS SESSION

Practical Information for Clinical and Experimental MRI Session Chair: Alayar Kangarlu

0840-0900 MR Safety Issues for Very High Field (≥ 3 -T) MRI

Alayar Kangarlu, Ph.D., Columbia University, New York, NY, USA

0900-0920 Peripheral Nerve Stimulation and MRI

John A. Nyenhuis, Ph.D., Purdue University, West Lafayette, IN, USA

0920-0940 RF Power Deposition Issues for MRI

Daniel J. Schaefer, Ph.D., General Electric Medical Systems, Milwaukee, WI, USA

0940-1000 Safety of MRI Contrast Agents

Val M. Runge, M.D., Scott and White Medical Center, Temple, Texas, USA

1000-1015 MRI and Pregnant Patients

Patrick M. Colletti, M.D., University of Southern California, Los Angeles, CA, USA

1015-1030 Screening Patients and Other Individuals

Anne Sawyer-Glover, BS, RT(R)(MR) Stanford University, Stanford, CA, USA

1030-1045 BREAK, poster viewing

1045-1055 Round Table Discussion by Presenters; Session Chair: Alayar Kangarlu, Ph.D.

Proffered Papers Moderator: Patrick M. Colletti

- 1115 *Neurobehavioral effects of exposure to the stray fields of a 7 Tesla clinical MRI scanner, Frank de Vocht*
- 1127 *Calculated nerve rheobase values for peripheral nerve stimulation in head gradient coils, Blaine Chronik*
- 1139 *Calculations of SAR for a body-size birdcage coil loaded with different human subjects, Wanzhan Liu*
- 1151 *Scalar potential and conservative electric field within a loaded gradient coil, Weihua Mao*
- 12:03 *Occupational exposure to time varying magnetic gradient fields (dB/dt) in MRI and European limits, Donald McRobbie*
- 12:15 *Investigations on the helium spill in a MRI cabin, Matthias Gebhardt*
- 1227 - 1330 **BREAK**

SPECIAL FOCUS SESSION

Interventional MR Procedures: Applications and Safety Aspects Session Chair: Joel Felmlee

- 1330 - 1350 **Interventional MRI: Safety Issues for Interventional Focused Ultrasound**
Joel P. Felmlee, PhD, Mayo Clinic, Rochester, MN, USA
- 1350 – 1410 **Safety Issues for Interventional MRI: Considerations for Workers and Patients**
Arno Buecker, M.D., M.Sc., University Clinic Aachen, Germany
- 1410 – 1430 **Interventional MRI: Safety Issues for Instruments, Devices, and Patient Support**
Ergin Atalar, Ph.D., Johns Hopkins University, Baltimore, MD, USA
- 1430 – 1450 **Testing Interventional Devices for MRI Safety**
Stephen G. Hushek, Ph.D., Norton Hospital, Louisville KY, USA
- 1450 - 1500 **Round Table Discussion by Presenters Session Chair: Joel Felmlee**
- 1500 - 1530 **BREAK, poster viewing**
- Proffered Papers, Moderator: Stephen G. Hushek**
- 1530 *Intracranial EEG in a High Field (3 Tesla) MRI environment : a safety study, Shannon Boucousis*
- 1542 *Movement in stray fields of MR Magnets in relation to health effects, Hans Engels*
- 1554 *Safety considerations in a single-room XMR facility, Derek Hill*
- 1606 *Safety considerations for XMR guided neuro-interventional procedures, Alastair Martin*
- 1618 *Monitoring and reducing resonant heating in MR guidewires, Ross Venook*
- 1630 **ADJOURN, ANNOUNCEMENTS**
- 1800-2000 **RECEPTION, EXHIBITS, POSTERS**

Sunday, 6 November

0800-0830 Coffee

**SPECIAL FOCUS SESSION: MRI Safety for Implants and Devices Session Chair: Frank
Shellock**

0830-0850 MRI Safety for Implants and Devices: Update 2005
*Frank G. Shellock, Ph.D., University of Southern California and Institute for Magnetic
Resonance Safety, Education and Research, Los Angeles, CA, USA*

0850-0910 Cardiac Pacemakers and ICDs: Laboratory Experience
Roger Luechinger, Ph.D., ETH and University Zurich, Switzerland

0910-0930 Cardiac Pacemakers and ICDs: Clinical Experience
Edward Martin, M.D., Oklahoma Heart Institute, Tulsa, Oklahoma, USA

0930-0950 Instruments and Devices for Anesthesia and Sedation
Keira Mason, M.D., Children's Hospital, Boston, MA, USA

0950-1010 Neurostimulation Systems and MRI Safety
Kenneth B. Baker, M.D., Cleveland Clinic Foundation, Cleveland, OH, USA

1010-1020 Round Table Discussion by Presenters Session Chair: F. Shellock

1020-1045 BREAK, poster viewing

Proffered Papers, Moderator, John A. Nyenhuis

**1045 *Influence of design geometry and placement configuration on MRI-induced
heating of implanted leads, Jeffrey Helfer***

**1057 *Inductively coupled MR visualisation of intraluminal substrates of vascular
implants, principles and safety aspects, Andreas Melzer***

1109 *Determination of induced currents in an implanted lead with MRI, Sing-Min Park*

**1121 *A basic investigation of heating effects on total hip prostheses in combination with
a simulated skin contact of the inner thighs during magnetic resonance imaging
(MRI) with an 1.5 Tesla MR system, Gregor Schaefers***

**1133 *Safety evaluation of vascular ports and stents in 3 tesla MRI scanners, Nikolaus
Szeverenyi***

1145-1300 BREAK, Lunch

**SPECIAL FOCUS SESSION: MRI Safety Standards, Guidelines and Recommendations
Session Chairs: Hans Engels, Loren Zaremba**

1300-1320 IEC60601-2-33 Safety Standard for MR systems: Third Edition
Hans Engels, Ph.D., Philips Medical Systems, The Netherlands

1320-1340 ASTM Standards for MRI: Present and Future
Terry O. Woods, Ph.D., Food and Drug Administration, Rockville, MD, USA

1340-1400 The White Papers on MRI Safety From the American College of Radiology
Emanuel Kanal, M.D., University of Pittsburgh Medical Center, Pittsburg, PA

1400-1420 Break, Poster Viewing

- 1420-1440** **MRI Safety and the Food and Drug Administration**
Loren Zaremba, Ph.D., Food and Drug Administration, Rockville, Maryland, USA
- 1440-1500** **Minimum Health and Safety Requirements for EMF Exposure: Consequences for the MR Community**
Hans Engels, Ph.D., Philips Medical Systems, The Netherlands
- 1500-1510** **Round Table Discussion by Presenters**
Session Chairs: *Hans Engels, Loren Zaremba*
- 1510** **ADJOURN**