



# Workshop Series 2010

Join ISMRM  
24-28 February  
2010

Kitzbühel, Tyrol, Austria  
Hotel Schloss Lebenberg

*The International Society for Magnetic Resonance in Medicine  
presents a Workshop on:*

## Current Concepts of Motion Correction for MRI & MRS

The ISMRM designates this educational activity for a maximum of  
15 AMA PRA Category 1 Credits™.

For more information: <http://www.ismrm.org/workshops/>

## FOR MORE INFORMATION

Phone: +1 510 841 1899 • Fax: +1 510 841 2340 • E-mail: [info@ismrm.org](mailto:info@ismrm.org)

<http://www.ismrm.org/workshops/>

ISMIRM Workshop on:

## Current Concepts of Motion Correction for MRI & MRS

### OVERVIEW

Motion is still an unsolved problem in MR and is a dominant source of artifacts. Motion can result in prolonged or diagnostically inadequate studies, and in some cases requires the use of sedation or general anesthesia. The decreased patient comfort and through-put is inconvenient for both the patient and the clinicians and can be significantly more costly.

The objective of this workshop is to bring specialists from different disciplines together and to provide a broader view, as well as detailed information about how various forms of motion can affect MR data; how motion can be detected; how to deal best with motion-corrupted data and what can be done to prevent MR data from being corrupted by motion; what new products and technologies are available to address these problems; and how to facilitate the translation of these new developments from bench to bedside.

### AUDIENCE DESCRIPTION

This workshop is designed for:

- MR Physicists and Engineers
- Physicians challenged by motion problems in MR

### EDUCATIONAL OBJECTIVES

Upon completing this workshop, participants should be able to:

- Describe sources of motion and their consequences on the MR scans;
- Implement simple measures to mitigate motion artifacts;
- Compare strengths and weaknesses of retrospective and prospective motion correction approaches;
- Describe challenges arising from patient motion for different body regions/subspecialities (neuro, body, MSK, pediatrics, spectro);
- Determine pose changes and elastic deformation with MR navigators and other external probes;
- Implement algorithms for rigid and non-rigid image registration and pattern recognition methods to determine pose changes; and
- Devise strategies to efficiently translate motion correction methods from bench to bedside.



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**PRELIMINARY LIST OF INVITED TALKS**

- Impact of Motion on Data Consistency & Image Quality in MRI
- Challenges of Motion in Body Imaging
- Body Radiologist's Expectations & Current Remedies
- Radiologists' Expectations for MSK & Pediatric Imaging
- Neuroradiologist's Expectations & Current Remedies
- Problems & Solutions for Cardiac Imaging
- Spectroscopy
- Retrospective Motion Correction
- Prospective Motion Correction
- Computational Methods for Motion Tracking
- Image Registration Methods
- MR Navigator Methods
- Real-time Prospective Motion Correction
- Optical Markers & Detection Accuracy
- Pattern Recognition Methods to Detect Position

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Physicians should claim credit commensurate with the extent of their participation in the activity.



The International Society for Magnetic Resonance in Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.



ISMRM Workshop on  
**Current Concepts of  
Motion Correction for MRI & MRS  
24-28 February 2010**

**Organizing Committee**

**Chair: Roland Bammer, Ph.D.**

Stanford University, Stanford, CA, USA

Thomas Ernst, Ph.D.

University of Hawai'i, Honolulu, HI, USA

Oliver Speck, Ph.D.

University of Magdeburg, Magdeburg, Germany

Maxim Zaitsev, Ph.D.



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**CALL FOR PAPERS: Submission deadline for digital abstracts: 4 January 2010**

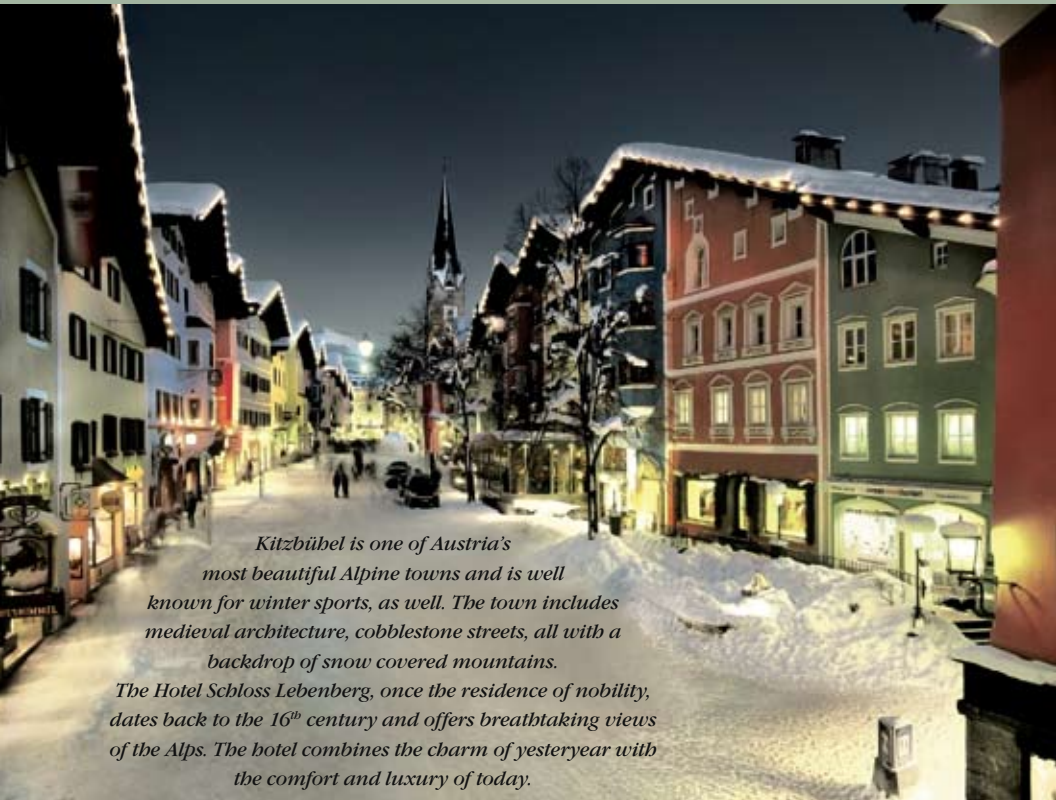
Prospective participants are invited to submit abstracts for oral or poster presentation. Abstracts are limited to one page in length or a maximum of 700 words, including all images, tables, graphs, and references and should be formatted in one column. Submission will be via the ISMRM web site. For complete instructions, please go to <http://www.ismrm.org/workshops/>.

**BOOK YOUR ROOM EARLY AND SAVE!**

This workshop will be held in the newly renovated Hotel Schloss Lebenberg in the city of Kitzbühel in the Tyrolean Alps of Austria. Kitzbühel is located centrally in Europe, and can be reached from Munich, Salzburg, or the Innsbruck airport by car or public transportation.

The workshop fee includes workshop attendance and materials, four nights' accommodation and all meals (welcome reception, four breakfasts, four lunches, three dinners, and all coffee breaks).

**ENJOY Kitzbühel, Tyrol, Austria**



*Kitzbühel is one of Austria's  
most beautiful Alpine towns and is well  
known for winter sports, as well. The town includes  
medieval architecture, cobblestone streets, all with a  
backdrop of snow covered mountains.*

*The Hotel Schloss Lebenberg, once the residence of nobility,  
dates back to the 16<sup>th</sup> century and offers breathtaking views  
of the Alps. The hotel combines the charm of yesteryear with  
the comfort and luxury of today.*

**ENROLLMENT APPLICATION:**  
 Current Concepts of Motion Correction for MRI & MRS  
 Register online: <http://www.ismrm.org/workshops/>

**◆ STEP 1: REGISTRATION**

Honorific and gender:  Male  Female  
 M.D.  M.D. Candidate  Ph.D.  Ph.D. Candidate  Prof.  RT  Other: \_\_\_\_\_

Family Name \_\_\_\_\_ First/Given Name \_\_\_\_\_ Middle Name \_\_\_\_\_  
 Institution \_\_\_\_\_  
 City \_\_\_\_\_ State/Province \_\_\_\_\_ Country \_\_\_\_\_

**◆ STEP 2: MAILING/CONTACT INFORMATION**

This address is for:  Work  Home This is new contact information  YES  NO

Street Address \_\_\_\_\_ City \_\_\_\_\_  
 State/Province \_\_\_\_\_ Zip+4 Postal Code \_\_\_\_\_ Country \_\_\_\_\_  
 Phone \_\_\_\_\_ Fax \_\_\_\_\_ Email \_\_\_\_\_

**◆ STEP 3: SPECIAL REQUESTS:**

I have a disability and require assistance  Please send me an invitation letter for the purpose of obtaining visa

**◆ STEP 4: FEES include:**

- Workshop registration
- Workshop materials
- 4 nights' accommodation (24, 25, 26, 27 February 2010)
  - Dinner on 24<sup>th</sup>
- 3 meals on the 25<sup>th</sup>, 26<sup>th</sup>, 27<sup>th</sup> breakfast & lunch on the 28<sup>th</sup>
  - Coffee breaks

Please Check One:	↓ Early (By 1 February)	↓ Late (After 1 February)
Member	US \$1900.00	US \$2000.00
Nonmember	US \$2150.00	US \$2300.00
Student Member**	US \$1700.00	US\$1750.00
Student Nonmember**	US \$1800.00	US\$1850.00

\*\* Students include postdocs, residents, fellows, and technologists.

**REQUIRED OF ALL REGISTRANTS:** Please provide your anticipated arrival/departure dates:  
 Arrival: \_\_\_\_\_ Departure: \_\_\_\_\_

**◆ STEP 5: STUDENT VERIFICATION\*** (Required for all students registering as nonmembers)

Supervisor's Name: \_\_\_\_\_ Institution Name: \_\_\_\_\_  
 Supervisor's Phone: \_\_\_\_\_ Supervisor's E-mail: \_\_\_\_\_

**◆ STEP 6: How did you learn about this workshop:**  brochure  associate  journal ad  web  email

**◆ STEP 7: PAYMENT OPTIONS** (FEES MUST BE PAID IN US DOLLARS)

- Check enclosed (personal, bank, institution) made payable to ISMRM in US dollars.  
 Credit Card: Please charge registration fees to my:  VISA  AMEX  MasterCard

Cardholder's Name (please print clearly) \_\_\_\_\_ Cardholder's Signature \_\_\_\_\_  
 Billing Street Address (required) \_\_\_\_\_ Postal Code \_\_\_\_\_  
 Card Number \_\_\_\_\_ Expiration Date \_\_\_\_\_ **US \$**  
 Payment Amount \_\_\_\_\_

Register by Mail: ISMRM, P.O. Box 45690, San Francisco, CA 94145-0690 USA  
 Register online: <http://www.ismrm.org/workshops/>

REFUNDS/CANCELLATIONS: To cancel registration, you must request a refund in writing by 8 February 2010. Your fee will be refunded, less a \$75 processing charge. No refunds can be granted for cancellation after this date.