Advanced MR Physics

Course

Course for postgraduate students
(7.5 hp)

May 21-25

National 7T facility
Klinikgatan 13b, Lund
Course for postgraduate students - Advanced MR physics

The course amounts to 7.5 credits.
Registration deadline 8 May 2018

Course content
This graduate course is aimed at students of MR Physics aiming to broaden their knowledge of the field. Basic knowledge of MRI is required. The course will cover, for example, the following topics and methods: Signal & phase array, selective RF pulses, fast imaging, sparse sampling, magnetization transfer effects, QSM, qMRI, IVIM, ASL, DCE&DSC MRI, CEST, multinuclear MR, hyperpolarization, and ultra-high-field MRI.

Teaching
The course is based on comprehensive lectures and interactive hands-on demonstrations or laboratory exercises. The participants will also prepare an in-depth review of a specific method, which is to be presented in a seminar. This individual work shall also be submitted in written form.

Assessment
Participants will be assessed based on the presence during the lectures and demonstrations/laboratory exercises, participation in the seminar (i.e., presentation of individual work and active involvement in discussions), as well as a written report.

When
Lectures will be held May 21-25. The Seminar will take place in September 10-11

Venue
National 7T facility, Lund

Social events
Excursion and social competitions will be part of the program

Language of instruction
The course is given in English.

Course responsible
Associate Professor Gunther Helms,
Department of Medical Radiation Physics,
Lund University

Associate Professor Linda Knutsson,
Department of Medical Radiation Physics,
Lund University

Apply to: Send an email to Linda.Knutsson@med.lu.se or Gunther.Helms@med.lu.se
## Schedule

<table>
<thead>
<tr>
<th>Måndag 21/5</th>
<th>Tisdag 22/5</th>
<th>Onsdag 23/5</th>
<th>Torsdag 24/5</th>
<th>Fredag 25/5</th>
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<tbody>
<tr>
<td>9:30-10:15</td>
<td>MR signal and Phase array /GH</td>
<td>MikroFA /MN</td>
<td>DSC&amp;DCE /RW</td>
<td>MT, MTC, NOE/ LK</td>
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<tr>
<td>10:30-11:15</td>
<td>Selective RF pulses /GH</td>
<td>Resting State /OS</td>
<td>IVIM /RW</td>
<td>CEST /LK</td>
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<tr>
<td>11:30-12:15</td>
<td>Fast imaging /TQ</td>
<td>QMRI /GH</td>
<td>ASL /ETP</td>
<td>QSM/KMB</td>
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<tr>
<td>13:30-14:15</td>
<td>Sparse sampling /FT</td>
<td>Laboration</td>
<td>Laboration</td>
<td>Excursion</td>
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<tr>
<td>14:30-15:15</td>
<td>MRS /AM</td>
<td>Laboration</td>
<td>Laboration</td>
<td>Excursion</td>
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<td>15:30-16:15</td>
<td>Info student-project/LK &amp; GH</td>
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GH-Gunther Helms  FT - Frederik Testud  MN - Markus Nilsson  RW - Ronnie Wirestam  LK - Linda Knutsson  PL - Peter Lundberg

TQ-Tie Qiang Li  AM - Anouk Marksman  OS - Olof Strandberg  EP - Esben Petersen  KMB - Karin M Bloch  VD - Vladimir Denisov
Additional information

For students attending other universities than Lund university, please fill out the form at
and send to linda.knutsson@med.lu.se. This will make LU examiner for this course.

People not yet enrolled in a PhD program can be admitted if there are free spaces. It is in the responsibility of these participants to check with their prospective home institution whether and how the course can be acknowledged for their PhD studies.

Lunch and coffee will be included in the course

No course fee