The first week (lectures) of the laboratory course will take place at Forschungszentrum Jülich near Aachen, Cologne and Düsseldorf, the second week (experiments) at the research reactor FRM II in Garching near Munich.

Transportation

Participants arriving by plane may choose Düsseldorf or Cologne airport, those taking the train should arrive at Aachen. Transportation to Munich and back will be provided by the organisers. Detailed travel instructions will be provided after the acceptance of participants.

Accommodation

Participants will be accommodated in shared rooms at “Jugendgästehaus Aachen” for the first week and at “Wombats City Hostel Munich“ for the second. Breakfast and dinner will be included. On working days lunch will be provided at the cafeterias of Forschungszentrum Jülich and Technical University Munich.

Where it takes place:

Mailing Address

Forschungszentrum Jülich GmbH
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Website: www.neutronlab.de

Important Dates

25 May 2012	Deadline for Application
3 – 14 September 2012	16th JCNS Laboratory Course

Mitglied der Helmholtz-Gemeinschaft

16th JCNS Laboratory Course

Neutron Scattering

3 – 14 September 2012
Jülich/Garching • Germany

JCNS Jülich Centre for Neutron Science
FRM II Forschungs-Neutronenquelle Heinz Maier-Leibnitz
JÜLICH FORSCHUNGSZENTRUM

The Jülich Centre for Neutron Science at the Forschungszentrum Jülich, Germany, organises in cooperation with the University of Münster (Prof. D. Richter, Dr. R. Zorn) and the RWTH Aachen University (Prof. T. Brückel, Prof. G. Heger, Prof. G. Roth) a laboratory course in neutron scattering with experiments at the neutron scattering facilities of the research reactor FRM II.

The laboratory course will consist of lectures, exercises and an experimental section. It is the aim of the course to give a realistic insight into the experimental technique neutron scattering and its scientific power.

The lectures will encompass an introduction to neutron sources, into scattering theory and instrumentation. Furthermore, selected topics of condensed matter research will be presented. In the afternoon, exercises will be solved in tutored groups to deepen the understanding of the subjects taught.

For the experimental part the participating students will work in groups of five. Each group will perform one neutron scattering experiment per day, i.e. each group will work at five different instruments. The experimental data measured will be analysed by the students assisted by the scientist responsible for the instrument.

If you are a student of physics, chemistry, material science or biosciences with BSc (or Vordiplom or equivalent) you are welcome to apply for participation in the 16th JCNS Laboratory Course Neutron Scattering. To follow the course you will need elementary knowledge of applied mathematics, solid state physics and quantum mechanics which is usually part of a completed BSc study of natural sciences. The course is on beginner level and **not** intended for post-docs having already some experience in neutron scattering.

The laboratory course is free of charge, there is no tuition fee. Forschungszentrum Jülich supports non-local students with free accommodation and half board. Travel stipends will be granted to a limited number of foreign students.

To apply for participation please fill the online form at **www.neutronlab.de**

This will generate a PDF form which should be signed and sent by mail or fax to the organisers arriving not later than **25 May 2012 (Deadline).**

If you wish to send a scanned copy (including your signature!) please send it to neutronlab@fz-juelich.de .

We acknowledge financial support by the EU projects NMI3 and SoftComp.

The laboratory course is part of the curriculum of the University of Münster and the RWTH Aachen University.

T. Brückel G. Heger D. Richter G. Roth R. Zorn

nmi3 SoftComp SOFT MATTER COMPOSITES

www.neutronlab.de

Lectures and exercises: Introduction to Neutron Scattering (Jülich)

Start: 3 September 2012 8:45 h
End: 7 September 2012 17:00 h

- Introduction: Neutron Scattering in Contemporar Research
- Neutron Sources
- Symmetry of Crystals
- Diffraction
- Nanostructures Investigated by Small Angle Neutron Scattering
- Macromolecules (structure)
- Spin Dependent and Magnetic Scattering
- Structural Analysis
- Neutron Reflectometry
- Magnetic Nanostructures
- Inelastic Scattering
- Strongly Correlated Electrons
- Dynamics of Macromolecules
- Applications of Neutron scattering – and Overview

Experimental section (Garching)

Start: 10 September 2012 9:00 h
End: 14 September 2012 17:00 h

In the experimental section, experiments on typical neutron scattering instruments will be performed:

- Backscattering spectrometer
- Polarisation analysis
- Reflectometer
- Neutron spin echo
- Small angle scattering
- Ultra-small angle scattering
- Single crystal diffraction
- Triple-axis spectrometer[1]
- Powder diffractometer[2]
- Time-of-flight spectrometer[3]
- Neutron resonance spin echo[3]

(1-3 made available by [1]University Göttingen, [2]TU Darmstadt/LMU München, and [3]TU München)