

Autumn School on Microstructural Characterization and Modelling of Thin-Film Solar Cells

November 2 - 7, 2014

Resort Hotel Schwielowsee
(near Potsdam, Germany)

<http://www.helmholtz-berlin.de/events/autumn-school>



Contact address for all inquiries:
autumn.school@helmholtz-berlin.de

The school's concept:

In research and development of solar cells, the issue of microstructure and its impact on the device performance is often regarded inadequately, mostly because of insufficient knowledge about analysis and simulation methods. Apart from the microstructural properties of completed thin films in semiconductor devices, it is also of concern how the microstructure develops during growth.

The school aims at giving insight into various techniques for microstructural analysis as well as simulation methods of the growth of crystalline materials, apart from a session on electrical materials and device characterization. Each session will comprise a keynote lecture of an expert in the corresponding field, followed by a 2-3 hours hands-on tutorial, giving the participants the possibility to get deeper into the topic, with the help of a specific question to be solved in teamwork practices.

Two poster sessions are also planned as evening events, which intensify the discussions and scientific exchange between experts and participants.

Leading experts in the covered topics will guide the students via lectures and individual tutoring.

Tentative agenda

- Introduction to thin-film solar cells and impact of microstructure in semiconductor devices
- 6 work units comprising keynote lectures and hands-on group work:
 - Fundamentals of photovoltaics
 - Rietveld analysis of diffraction data
 - Electron backscatter diffraction
 - Microstructural and compositional analyses in transmission electron microscopy
 - Density functional theory and molecular dynamics
 - Phase-field modeling
- Final questions & answers

Confirmed Invited Speakers:

Thomas Kirchartz, FZ Jülich
Joachim Mayer, RWTH Aachen / ER-C, FZ Jülich
Juan Rodriguez-Carvajal, ILL Grenoble
Anthony D. Rollett, Carnegie Mellon University
Ingo Steinbach, Ruhr Universität Bochum
Xiaowang Zhou, Sandia National Laboratories

Scientific board:

Daniel Abou-Ras (HZB)
Karsten Albe (TU Darmstadt)
Susan Schorr (FU Berlin / HZB)
Thomas Unold (HZB)
Peter van Aken (MPI for Intelligent Systems, Stuttgart)
Barbara Wagner (TU Berlin)
Stefan Zaefferer (MPI for Iron Research, Düsseldorf)

Organized as part of the Helmholtz Virtual Institute
Microstructure Control for Thin-Film Solar Cells



Application

All interested colleagues are required to apply through this website (<http://www.helmholtz-berlin.de/events/autumn-school/applications/>). Since the school is limited to **50 participants**, we have a selection procedure. To be able to judge applicants, please submit your curriculum vitae. Accepted participants will be notified in early July 2014.

Deadline for all applications: May 31st, 2014

Financial support is gratefully acknowledged:

Helmholtz Association of German Research Centers
Helmholtz-Zentrum Berlin für Materialien und Energie (HZB)