Annual Report 2006
Selected Results

Hahn-Meitner-Institut
Berlin, 2007

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Foreword

This Annual Report presents the most important events and selected scientific Highlights of the Hahn-Meitner-Institut from the year 2006.

2006 was the last year of research with ions at HMI. Closing of the institute's Ion Beam Laboratory ISL completes 40 years of successful research using ion accelerators.

The proton induced eye tumour therapy at HMI will survive this turning point: The Charité University Hospital Berlin is ready to continue the therapy in Wannsee with HMI delivering the proper proton beam on the basis of full cost refunding outside our research programme.

Part of the ISL experimental stations designed for heavy ion induced materials modification and analysis will be transferred to GSI, the Gesellschaft für Schwerionenforschung in Darmstadt, to allow the user community to continue the corresponding part of their scientific programme.

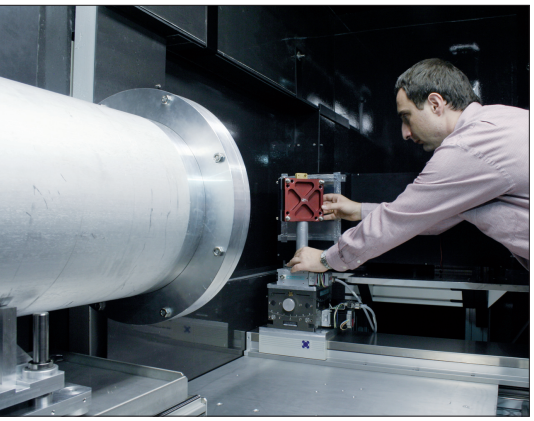
We will take all efforts to justify the closure of ISL by integrating the personnel and the resources for the visible benefit of the research with neutrons and synchrotron light.

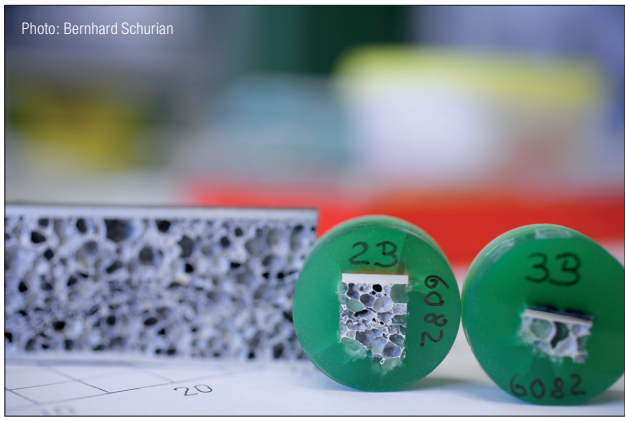
This will concern two major tasks in particular:
The most spectacular project for the research with neutrons is certainly the new High Field Magnet. With its realisation, scheduled for 2010, we will further sharpen our profile and remain at the forefront in providing extreme sample environments. We are grateful that the Helmholtz Association has approved the funding of the project.

The installation of the instruments in the new Neutron Guide Hall II is in progress. This includes the new time-of-flight diffractometer EXED at the new multispectral neutron guide, specifically designed for experiments utilising the new High Field Magnet.

The other major task will be the upgrade of the "old" instruments over the next years. An external review panel convened in October 2006 to discuss a priority list.

The Solar Energy Research Division very successfully passed the mid-term evaluation of its first programme-period under the programme-oriented funding (POF). In this context, an extensive discussion on the future strategy for this program took place. An important result is the foundation of a Competence Center for Photovoltaic Thin-Film Technology. The task of this centre, co-ordinating the activities of HMI, the Technische Universität (TU) Berlin and industry, will be to combine the more fundamental research at HMI with the technology and device oriented activities at the TU and the actual production by industrial companies.



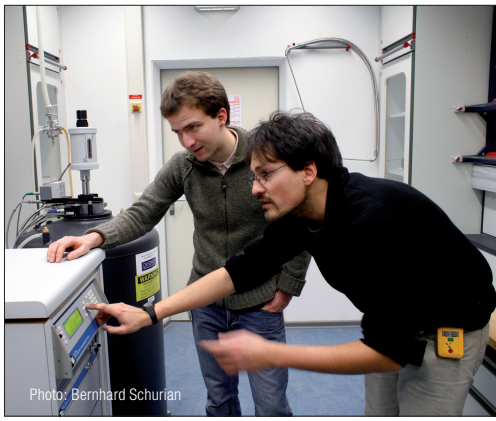


One of the key figures in this project is the new head of the department Silicon Photovoltaics (SE1), Bernd Rech, whom we gladly welcomed joining HMI in June 06.

Other new faculty appointments were on halt because of the pending formulation of the Structure and Development Plan for the next one to two decades. As the S&E plan is now formulated, we hope to advance with the search for the new department heads SF1, SF4 and SE4 without further delay.

All these developments, together with the continuing devoted engagement of our staff as well as of our associates makes us grateful and looking forward very trustfully.

Scientific Director (CEO) Prof. Dr. Michael Steiner, Administrative Director Dr. Ulrich Breuer



HMI in brief

The **Hahn-Meitner-Institut** (HMI) in Berlin is one of Germany's leading centres for research on solar energy conversion, condensed matter and materials science. It has approximately 750 employees, including almost 300 scientists – most of them physicists and chemists. Most of the institute's annual budget of roughly 70 Million € is provided by the German Federal Government and the City of Berlin in a ratio of 9 to 1.

The Hahn-Meitner-Institut is member of the Helmholtz Association of National Research Centres, an organisation representing fifteen of Germany's largest scientific institutions. The common mission of the Helmholtz centres is to develop, set-up and operate large-scale facilities, to solve complex – often multidisciplinary – scientific and technological problems in long-term proactive research programmes and to develop high technologies for the future. The Helmholtz Association concentrates its work in six research fields: *Energy, Earth and Environment, Health, Structure of Matter, Transport and Space* and *Key Technologies*. For each of these fields, scientists develop several research programmes for 5-year periods. These programmes are then evaluated by a group of international experts. This evaluation forms the basis for the programme-oriented funding, which distributes the financial resources to the scientific programmes of the Helmholtz research fields rather than to the institutes.

Scientific work at the Hahn-Meitner-Institut is organised in two divisions reflecting the two main fields of activity: *Solar Energy Research* and *Structure and Dynamics in Condensed Matter*. The Solar Energy Research is part of the Helmholtz-programme *Renewable Energies* within the research field *Energy*. Most of the activities of the Division *Structure and Dynamics in Condensed Matter* are part of the programme *Large-Scale Facilities for Research with Photons, Neutrons and Ions* in the research field *Structure of Matter*. The research on trace elements is conducted in the Helmholtz programme *Environmental Health* within the research field *Health*.

Solar energy research at the Hahn-Meitner-Institut is the largest effort in the field of sustainable energy within the Helmholtz Association and comprises approximately 25 % of HMI's research and development efforts. As an interdisciplinary activity between solid state physics, material chemistry, optics and interfacial chemistry, it aims at creating scientific and technological preconditions for significantly increasing the contribution of sustainable energy to our energy supply over the next decades. This activity is taking advantage of an already well balanced research infrastructure and increasingly uses the unique measurement opportunities provided by the large scale facilities of the Hahn-Meitner-Institut.

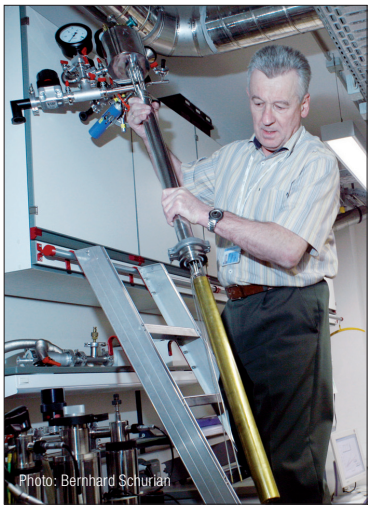


Photo: Bernhard Schurian