

6. Workshops and meetings

Fifth Workshop “Towards Fusion Energy – Plasma Physics, Diagnostics, Spin-offs” Kudowa Zdrój, June 6-10, 2005

The Association Euratom-IPPLM co-organized the Fifth Workshop/School entitled “Towards Fusion Energy – Plasma Physics, Diagnostics, Spin-offs”. The Workshop/School was held on June 6-10, 2005 in Kudowa Zdrój (a small resort city at the Polish-Czech border), Poland and about 50% of lectures given during the event were devoted to the fusion energy problems.

The following topics have been addressed:

- Magnetic Confinement and ICF Principles and Experiments
- Fusion Materials Research and Development
- Physics of Z-pinch
- Pulsed-Power Technique and Applications
- Plasma Diagnostics Techniques
- Magnetised Plasmas in Space and Universe

The organizers managed to collect a group of excellent lecturers which have the world-wide reputation, namely:

- Hardo Bruhns (European Commission, Brussels)
- Dieter H.H. Hoffmann (GSI-Darmstadt, Germany)
- Petr Kulhanek (Czech Technical University, Prague, Czech Republic)
- Hans J. Kunze (Ruhr University, Bochum, Germany)
- Jochen Linke (Forschungszentrum Juelich, Juelich, Germany)
- Georgi Melikidze (Abastumani Astrophysical Observatory, Georgia)
- Rudolf Neu (Max-Planck-Institute of Plasma Physics, Garching, Germany)
- Jef Ongena (EFDA Close Support Unit at Culham, Culham, UK)
- Volker Philipps, (Forschungszentrum Juelich, Juelich, Germany)
- Marek Rubel (Royal Institute of Technology (KTH), Stockholm, Sweden)
- Marek J. Sadowski (The Andrzej Soltan Institute for Nuclear Studies (IPJ), Warsaw, Poland)
- Jan Stockel (Institute of Plasma Physics, Czech Academy of Sciences, Prague, Czech. Rep.)
- Graham W. Smith (ALDERMASTON, UK)

Sixty one young as well as experienced scientists from seventeen countries (Belgium, Czech Rep., France, Germany, Rep. of Georgia, Iran, Italy, Lithuania, Poland, Romania, Russia, Singapore, Slovakia, Sweden, Turkey, Ukraine and United Kingdom) took part in the event.

During special sessions the participants had a possibility to present short (20-30 minutes) talks about their research activities. These presentations as well as invited lectures have been distributed in the form of CD.

After a regular peer-review procedure invited lectures and participants' presentations will be published in the special issue of the *Physica Scripta*.

Two special public lectures for the local high schools students (16-17 years old) have been also organized during the event. At the theatre of the Kudowa town Dr. Marek Rubel from Royal Institute of Technology, Stockholm, Sweden and Dr. Hardo Bruhns (European Commission) have presented talks having the general title “Why Fusion?”. About 150 young students from Kudowa and its neighborhoods were listening to excellent presentations that made them familiar with the global energy problems, existing alternatives for energy production and the fusion energy as an important long-term option for energy supply.

Expert-meeting on plasma streams interaction with materials
Institute of Plasma Physics and Laser Microfusion, November 15–17, 2005

The meeting led by Dr. Jochen Linke from Forschungszentrum Juelich, FZJ, Germany was very successful and resulted in establishment of the informal international consortium that will carry out comparative investigation of different materials subject to heavy plasma and radiation loads in view of ITER and beyond ITER (DEMO) demands.

The laboratories participating in the consortium are:

- Sandia National Laboratories, US
- Forschungszentrum Juelich FZK Juelich, Germany
- Troitsk Institute for Innovation and Fusion Research, Russia
- Kharkov Institute of Physics and Technology, Ukraine
- Institute of Plasma Physics and Laser Microfusion, Poland

They have in their disposal powerful tools like electron (FZK) and ion (Sandia) beams generators as well as various plasma streams generators with different pulse duration – long (500 μ s – Morozov type – Kharkov), medium (15 μ s – Marshall gun type – Troitsk) and short (1 μ s – plasma-focus type – IPPLM). Although none of them is capable to simulate all features of the loads expected in future thermonuclear reactors but concerted investigation performed on all above mentioned devices should allow to get a more complete picture of consequences of such loads for materials properties.

Presentations:

Jochen Linke, Institute of Plasma Physics, FZ Juelich, Germany
Thermal loads to plasma facing components in next step fusion devices

Timothy Renk, Sandia National Laboratories, USA
Chamber wall materials response to repeated pulsed ion exposure at IFE power plant level fluences

Volodymyr I. Tereshin, National Science Center Institute of Physics and Technology, Kharkov, Ukraine
Quasi-steady-state plasma accelerators for simulation of plasma-surface interactions relevant to ITER transient events

Nikolay I. Arkhipov, Troitsk Institute for Innovation and Fusion Research, Russian Federation
Testing of divertor armour materials at plasma gun facility MK-200

Elżbieta Fortuna, Warsaw Technical University, Poland, at WUT
Short presentation on the activity and analytical equipment available

Igor E. Garkusha, National Science Center, Institute of Physics and Technology, Kharkov, Ukraine
Experimental simulation of ITER high heat loads at QSPA Kh-50: status and prospects

Rudolf Neu, Max-Planck-Institute of Plasma Physics, Garching, Germany
W programme at ASDEX Upgrade

V. Pimenov, Baikov Institute of Metallurgy and Material Sciences, Moscow, and Vladimir Gribkov, IPPLM, Poland
Influence of pulsed high heat fluxes upon the material of low activation austenitic steel in the dense plasma focus device

E. Skladnik-Sadowska, Institute for Nuclear Problems, Swierk /Otwock, Poland
Diagnosing of plasma stream – target interaction by means of time-resolved optical spectroscopy