

6 Conferences, training and education activities

The 34th European Physical Society Conference on Plasma Physics Warsaw, 2-6 July 2007

General information

The 34th European Physical Society Conference on Plasma Physics has been held in Warsaw, in the Warsaw Congress Center (WCC) at the Palace of Science and Culture from 2nd to 6th of July 2007.

The Conference is among the most important events, where recent results in all areas of plasma physics are presented, covering the following areas:

- Magnetic Confinement Fusion
- Beam Plasmas and Inertial Fusion
- Dusty and Low Temperature Plasmas
- Basic Plasma Physics and Astrophysics

The basic purpose of the Conference is to facilitate an in depth technical presentation and discussion of recent topical developments in all areas of plasma physics and controlled fusion physics, but also to encourage specialists to the cross-disciplinary exchange of information between various plasma physics related fields. Due to this reason, plenary sessions covering all the latest developments in plasma science were held each day. Parallel invited talks related to the main topics of the Conference covered advanced technical aspects.

Among the contributions submitted to the Conference, the Programme Committee selected a number of papers that were presented in parallel oral sessions and contributed papers that were presented as posters. Apart from plenary and parallel lectures every day's program contained a separate time slot exclusively allotted to Poster Sessions.

The 655 participants from 40 countries attended in the 24th EPS CPP. The biggest number of representatives came from Germany (102), Russia (64), USA (59), France (68), Italy (51), UK (40), Poland (31) and Japan (31).

All important information are still on the web site: www.eps2007.ifpilm.waw.pl

Scientific programme. Conference topics

Magnetic Confinement Fusion

- Edge and plasma-wall interactions
- Turbulence and transport
- Equilibrium and MHD
- Operational limits and plasma control
- Diagnostics
- Heating and fuelling
- Concept development and engineering

Beam Plasmas and Inertial Fusion

- Inertial confinement and high gain
- Hydrodynamics and instabilities
- Ultra-intense laser interaction and fast ignition
- Frontiers in hot dense matter research, pulsed power,
- Radiation hydrodynamics, laboratory astrophysics
- Inertial fusion energy drivers and reactors
- Laser and ion beam coupling with plasmas
- Radiation sources - harmonics, X-ray lasers, etc.
- Laser and plasma based accelerators

Dusty and Low Temperature Plasmas

- Theory and numerical simulations

Coulomb crystals and phase transitions
Nucleation and growth
Waves
Diagnostics
Plasma processing and applications

Basic Plasma Physics and Astrophysics

Solar, space and astrophysical plasmas
Fundamental plasma physics

Invited plenary talks

Magnetic Confinement Fusion

- P. Barabaschi (EFDA, Garching, Germany): The engineering and physics basis for the design of a tokamak
- A. Loarte (EFDA-Close Support Unit Garching, Garching bei Muenchen, Germany), Transient energy fluxes in tokamaks: Physical processes and consequences for next step devices
- J. A. Heikkinen (VTT, Espoo, Finland): Kinetic, two-fluid and MHD simulations of plasmas
- E. Joffrin (France): Advanced tokamak scenarios

Beam Plasmas and Inertial Fusion

- M. Zepf (Queen's University Belfast, Belfast, UK): High harmonics from relativistically oscillating plasma surfaces - a high brightness attosecond source at keV photon energies
- G. A. Mourou (Laboratoire d'Optique Appliquée, Ecole Polytechnique, Palaiseau CEDEX, France): Relativistic laser-matter interaction: from attosecond pulse generation to fast ignition
- N. B. Alexander (General Atomics, San Diego, U.S.A.): Inertial fusion power plants and Studies and prospect of fast ignition of compressed ICF fuel
- S. Jabłoński (Institute of Plasma Physics and Laser Microfusion, Warsaw, Poland): Studies and prospect of fast ignition of compressed ICF fuel

Dusty and Low Temperature Plasmas

- K. Tachibana (Department of Electronic Science and Engineering, Kyoto University, Japan): Metamaterials composed of artificial array of microplasmas and the diagnostics

Basic Plasma Physics and Astrophysics

- V. E. Fortov (Institute of Extreme States, Moscow, Russia): Pressure Ionization and Phase Transition in Strongly Coupled Plasmas under Extreme Condition
- BPP/A K. Hallatschek (IPP Garching, Garching, Germany): Nonlinear Three-Dimensional Flows in Magnetised Plasmas

Program committees

Magnetic Confinement Fusion

Sibylle Guenter, Germany (Chair of PC)
Jo Lister, Switzerland (Chair of EPS PP Division)
Rob Akers, UK
Duarte Borba, Portugal
Gerardo Giruzzi, France
Carlos Hidalgo, Spain (2008 PC chair)
Taina Kurki-Suonio, Finland
Sergei Lebedev, Russia
Gabiella Saibene, EFDA/EU
Gregorio Vlad, Italy

Beam Plasmas and Inertial Fusion (BPIF)

Marco Borghesi, Italy
 Mike Dunne, UK
 Sergei Guskov, Russia
 Stefan Karsch, Germany
 Maurizio Lontano, Italy
 Zygmunt Skłodanowski, Poland (Chair of LOC)
 Vladimir Tikhonchuk, France

Basic Plasma Physics and Astrophysics

Sandra Chapman, UK
 Hans Pecseli, Norway
 Rudolf Treumann, Germany

Dusty and Low Temperature Plasmas

Laifa Boufendi, France
 Christophe Hollenstein, Switzerland
 Achim von Keudell, Germany.

Local Organising Committee

The Local Organizing Committee of the 34th EPS CPP has been established at the Institute of Plasma Physics and Laser Microfusion, Association EURATOM/IPPLM.

Members of the Local Organising Committee

Zygmunt Skłodanowski,	Director of the IPPLM, Chairman of the LOC
Sylwia Wrotek	Scientific secretary
Agata Czarnecka	Poster presentation, small parallel meetings
Joanna Dziak-Beme	WCC, social events
Paweł Gašior	Webmaster, programme, publications
Agnieszka Marchewka	LOC Info desk
Monika Kubkowska	Daily timetable, oral sessions
Ryszard Panfil	WCC, technical issues, social events
Ewa Sieczkowska	Finances
Jerzy Wołowski	Scientific issues, programme, publications
Basil Duval (CRPP/EPFL, Lausanne, Switzerland)	ELISE operation, CD ROMs preparation

Satellite meeting after the conference

- The 10th Workshop on Electric Fields, Structures, and Relaxation in Edge Plasmas, Warsaw, 8-9 July 2007.
Chairman: Prof. Guido van Oost.
- The Workshop on Dusty in Fusion Plasmas, Warsaw, 8-10 July 2007.
Chairman: Prof. Boris Kuteev.

Social programme

- Welcome Reception on Monday, July 2nd, in Hotel Europejski, (free of charge)
- Organ Concert by Prof. M. Haines, on Tuesday, July 3rd, in Holy Trinity Church (free of charge)
- Conference Excursion – City Tour on Wednesday, July 4th
- Conference Dinner at the Gosciniac Wiecha (Wiech's Passage), ~30 km from Warsaw centre on Thursday, July 5th

Submission and publication of the invited and contributed papers

Abstracts of invited papers and contributions for the 34th EPS CPP were submitted through the electronic system ELISE. All contributions were evaluated by the Programme Committee on the basis of the submitted abstracts. Most of the contributed papers were accepted for poster presentation and

only a limited number was selected for oral presentation. The abstracts of invited papers and the titles of contributed papers were published in the Book of Abstracts distributed among the participants upon registration.

The 572 (~90%) proceedings containing four-page contributed papers were published on the website after the Conference and on CD ROMs distributed among the conference participants in January 2008. The manuscripts of 61 (81%) invited papers were submitted to the LOC during and after the conference. After evaluation by 2 referees the invited papers were published in December 2007 in a special issue of Plasma Physics and Controlled Fusion, which was posted to participants who have ordered this volume of PP&CF.

Conference presentations

Invited plenary talks:	= 11
Invited parallel (topical) talks:	= 62
Oral contributions:	= 73
Posters:	= 566

	Invited plenary talks	Invited Parallel talks	Oral contributions
Magnetic Confinement Fusion	4	22	23
Beam Plasmas & Inertial Fusion	4	15	22
Basic Plasmas & Low Temperature Plasmas	2	15	14
Dusty Plasmas & Astrophysics	1	10	14

Special lecture and sessions

- The lecture: “Quarter Century of H-mode Studies” given on 2nd of July by Prof. F. Wagner (IPP Greifswald, Germany, the Hannas Alfvén Prize Winner)
- Session „Women in Physics” on 2nd July, chaired by Prof. E. Ralchew
- “ITER Session” on 3rd of July chaired by Prof. G. Janeschitz.

Sponsorship

The organisation of Conference, publication of Conference materials, support of students and young scientists from the East European countries were financially supported by the following organisations and institutions:

- The Institute of Plasma Physics and Laser Microfusion (IPPLM), Association EURATOM - IPPLM,
- Commune of Warsaw and Management of the Palace of Culture and Science in Warsaw,
- IOP Publishing Ltd, Publisher of the special issue of Plasma Physics and Controlled Fusion journal containing Conference invited papers
- East West Task Force Fund support for 7 young scientists from Eastern European countries.

Participation in the Euratom Fusion Training Scheme: W7-X Superconducting Magnet System: Fabrication and Testing “W7-X SC MAGNETS”

- Associations: IPP, FZJ, FZK, CEA, IPPLM(WUT)
- Industry: Babcock Noell, Ansaldo and Tesla

A Ph.D. student at Warsaw University of Technology, Mr. Paweł Czarkowski, is participating in the W7-X SC Magnets Project. He is one out of 4 participants of this Euratom training activity. Each of the participants has his/her own task in the scope of the common topic which is manufacturing/assembling/operation/modelling of fusion reactors' superconducting magnets. The task of Mr Czarkowski consists of modelling of W7-X relevant parts using Finite Element Method. His activities are supervised by tutors from Warsaw University of Technology, more precisely the team

also participating in the EURATOM-IPPLM project, and IPP Greifswald - Systemtechnik department, where Mr. Paweł Czarkowski is an employee.

Presently, his main task, in the scope of the activity, is analysis of influence of the strain due to wedges welding on behavior of central support elements. This task demands a broad knowledge of main support structure of W7X which is provided by IPP Greifswald team. Mr. Czarkowski has also other minor task, all of them related with support structure of W7X.

Since the start of the project he has spent more-or-less equal time in IPP and WUT, with 2-3 weeks intervals. The project is still in its starting phase and substantial lectures and visits are planed to take place in near future.

Education and advanced training

- M. Lewandowska attended MaTeFu Summer School on Superconductors for Fusion
- Andrzej Drabina and Urszula Wiącek attended IPP Summer University on Plasma and Fusion Research, Greifswald, 24 - 28 September, 2007

Tutorial lectures and lecture courses

- Krzysztof Drozdowicz, Neutron applications - including thermonuclear fusion for future power plants, in course of the lectures "Neutron transport physics" for Doctoral Studies, Institute of Nuclear Physics Polish Academy of Sciences (IFJ PAN), Kraków 2007

Workshops and meetings attended

- EU TF PWI SEWG High-Z Meeting, Garching, Germany, 10-11 May, 2007
Elżbieta Fortuna
- ITER Conductor Meeting, Villigen PSI, Switzerland, 2–3 July, 2007.
Present status of the ITER conductors tests were presented and discussed.
Monika Lewandowska
- A meeting on X-ray diagnostics for W7-X, Warsaw, Poland, 9-11 July, 2007
The status of realisation of the collaboration agreement signed in March 2006 was discussed. The plans of the works for the nearest future were reconsidered
Leszek Ryć, Sławomir Jabłoński, Jacek Kaczmarczyk, Agata Czarnecka, Jacek Rządkiwicz,
- Short meeting concerning the use of the code IONEQ developed at IPP Greifswald for W7-X Stellarator, Greifswald, Germany, 16-17 August, 2007
Leszek Ryć, Sławomir Jabłoński
- Association Days, Kudowa Zdrój, Poland, 17-20 September, 2007.
Areas of interest of the different research groups joined in the Polish Association EURATOM were presented. Possibilities of collaboration between different groups were discussed.
- A meeting of the sides: Institute of Electrical Engineering, Bratislava, Slovakia and IPPLM, Warsaw, Poland, 12-15 December, 2007
Both sides plan to be involved in the Euratom project for the next years. The main subject of the collaboration is a development of new detectors based of wide-band high-Z semiconductor materials, which would be resistant to damaging made by neutrons. The meeting was mostly devoted to designing a GaAs detector and a GaAs detection head (containing a cooled detector)
Leszek Ryć, Jacek Kaczmarczyk