

European Summer School

"Low Temperature Plasma Physics: Basics and Applications"

October 7 – 12, 2006

and

"Master Class: Plasmas and Industry"

October 12 – 14, 2006



Chairman: Prof. Dr. J. Winter, Ruhr-Universität Bochum
Co-Chairman: Prof. Dr. D.C. Schram, Technical University Eindhoven
Organization: Dr. M. Böke / P. Burkhardt

Support:



*Arbeitsgemeinschaft
PLASMAPHYSIK*



Graduiertenkolleg GK1051

Sonderforschungsbereich SFB591

Scope of the Course and Master Class

The level of the course is aimed at:

Ph.D.-students in first year

Diploma- and M.-Sc.-students in last year

The aim of the course is to make the students become acquainted with the up-to-date status of the field of low temperature plasma physics. It is assumed that the students have followed introductory physics courses in their home university. However, the basic principles will be summarized at the beginning of the course. The course offers a broadening of knowledge in plasma physics and in the interaction of plasmas with surfaces including a description of advanced diagnostics. In addition, the students will be able to interact with the teachers of the course and they will meet fellow-students from other universities in Europe during the Course and the Master Class. During the course a special session will be devoted to presentations of the students to encourage interaction. Participants are invited to bring with them presentation material in form of posters.

All lectures and discussions are in English.

Well-known experts in the field will present lectures in the following areas:

- fundamentals of plasma physics,
- plasma sources,
- thermal and low pressure plasmas,
- atomic processes,
- electron kinetics,
- diagnostics and plasma spectroscopy,
- modelling,
- plasma-surface interactions,
- etc...

During the **Master Class** the topic of **Plasmas and industry** will be discussed at a level of forefront research.

Program of the School

Saturday, Oct. 7: Arrival/Registration from 17.00 - 21.00 (Dinner included)

Sunday, Oct. 8:

08.30-08.45	Welcome and introduction
08.45-10.15	Fundamentals of Gas Discharges I (<i>M.A. Lieberman, U of California, Berkeley</i>)
10.30-12.00	Fundamentals of Gas Discharges II (<i>M.A. Lieberman, U of California, Berkeley</i>)
14.00-15.30	Plasma diagnostics I: measuring the electron density and ion flux (<i>N.St.J. Braithwaite, The Open University Oxford</i>)
16.00-17.30	Plasma diagnostics II: basic plasma spectroscopy (<i>G. Dinescu, NILPRP, Bucharest</i>)
18.00	Summer school Dinner

Monday, Oct. 9:

08.30-10.00	Capacitively and Inductively Coupled Plasmas (<i>M. Krämer, U Bochum</i>)
10.30-12.00	Wave-produced Plasmas (<i>J. Berndt, U Bochum</i>)
14.00-15.30	High Pressure Thermal Plasmas and Sources (<i>J. Mentel, U Bochum</i>)
16.00-17.30	Corona and Barrier Discharges (<i>U. Kogelschatz, Hauser</i>)
19.00-21.30	Poster Session

Tuesday, Oct. 10:

08.30-11.00	Electron Kinetics in Atomic and Molecular Plasmas Fluid Modeling of Plasma Discharges (<i>L.L. Alves, IST Lisbon</i>)
11.15-12.45	Plasma diagnostics III (<i>W.W. Stoffels, TU Eindhoven</i>)
14.00-15.30	Plasma diagnostics IV: (<i>R. Engeln, TU Eindhoven</i>)
16.00-17.30	Dusty plasmas (<i>H. Kersten, U Kiel</i>)
20.00-21.30	Evening Lecture: The Universe – A World of Plasmas (<i>H. Kersten, U Kiel</i>) (a popular evening lecture with experiments)

Wednesday, Oct. 11:

08.30-10.00	Monte Carlo models of particle transport (<i>S. Longo, U Bari</i>)
10.30-12.00	Surface Processes in Plasmas (<i>J. Benedikt, U Bochum</i>)
Afternoon	Outing

Thursday, Oct. 12:

08.30-10.00	Modelling of Low Temperature Plasmas: Global Models (<i>R.P. Brinkmann, U Bochum</i>)
10.30-12.00	Plasma-Surface interaction: diagnostics (<i>W.M.M. Kessels, TU Eindhoven</i>)

Special subject: Plasmas and industry**Thursday, Oct. 12:**

14.00-15.30	3D Integration for System in Package (<i>F. Roozeboom, NXP</i>)
16.00-17.30	Cases: discuss challenging problems in small groups (<i>J.H. van Helden, TU Eindhoven</i>)
19.00-21.00	Cases: discuss challenging problems in small groups (<i>J.H. van Helden, TU Eindhoven</i>)

Friday, Oct. 13:

08.30-10.00	ASML and plasma physics (<i>V. Banine, ASML</i>)
10.30-12.00	Plasmas for polymer technology. (<i>M.A. Creatore, TU Eindhoven</i>)
14.00-17.00	Presentations of the cases with discussion (<i>J.H. van Helden, TU Eindhoven</i>)
17.00 -18.00	<i>Closing, End of the School</i>

Saturday, Oct.14:

08.00-09.30	<i>Leaving</i>
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