

260. WE- Heraeus Seminar

**Course on Low Temperature Plasma Physics and Applications
(CLTPP-6)**

September 23 – 28, 2001

and

**Master Class on Hot Topics in Plasma Physics and Technology: Dusty
Plasmas**

October 1 – 2, 2001

Physikzentrum Bad Honnef



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

Support:



*Arbeitsgemeinschaft
PLASMAPHYSIK*



Graduiertenkolleg "Hochtemperatur-Plasmaphysik"
Fakultät für Physik und Astronomie, Ruhr-Universität Bochum

PROGRAM

Course on Low Temperature Plasma Physics and Applications (CLTPP-6)

	MON 24-Sep-01	TUE 25-Sep-01	WED 26-Sep-01	THU 27-Sep-01	FRI 28-Sep-01	
7:45	BREAKFAST					
8:30 – 10:00	Welcome (Winter) Fundamentals 1 (Braithwaite)	Microwave plasmas (Berndt)	Electron kinetics (Loureiro)	Diagnostics1 (Schram)	Ro-vib excitation (Bretagne)	
10:00	COFFEE BREAK					
10:30 – 12:00	Fundamentals 2 (van de Sanden)	Thermal plasmas I (Fauchais)	PIC-, MC-, Fluid models (Longo)	Diagnostics 2 (Kroesen)	Plasma-surface (von Keudell)	
12:00	LUNCH					
14:00 – 15:30	Capacitive Plasmas (Goedheer)	Thermal plasmas II (Fauchais)	Outing	Diagnostics 3 (Allen)	End of the Course	
15:30	COFFEE BREAK			COFFEE BREAK		
16:00 – 17:30	Inductive Plasmas (Krämer)	High pressure off equ. (Pietsch)		Molecular plasmas (Ricard)		
18:00	DINNER					
19:00 – 21:30		Poster Session I		Poster Session II		

PROGRAM

Master Class on Hot Topics in Plasma Physics and Technology: Dusty Plasmas

	MON 01-Oct-01	TUE 02-Oct-01
7:45	BREAKFAST	
8:30 – 10:00	Complex plasmas, basic forces, Coulomb crystals (Thomas)	Technological aspects (Kersten)
10:00	COFFEE BREAK	
10:30 – 12:00	Charging, interaction potentials, vertical ordering (Melzer)	Microgravity (Konopka)
12:00	LUNCH	
14:00 – 15:30	Oscillations and waves (Piel)	Interstellar Dust (Krügel)
15:30	COFFEE BREAK	
16:00 – 17:30	Dust formation in reactive gases (Hollenstein)	End of the Master Class
18:00	DINNER	

Lecture Notes

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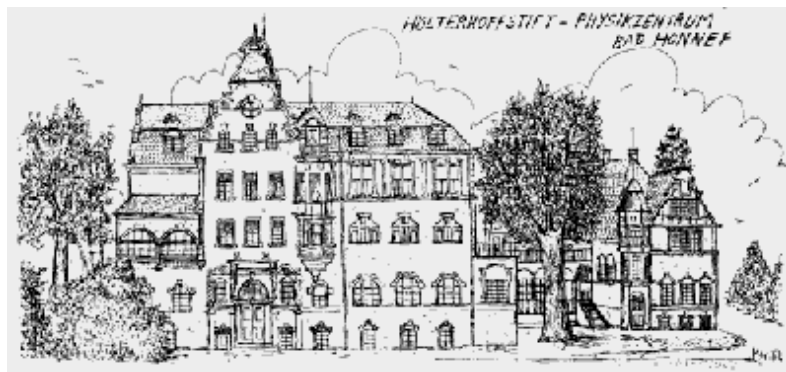
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Scope of the Course and Master Class

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. Also 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 on Hot Topics in Plasma Physics and Technology** the topic of **Dusty Plasmas** will be discussed at a level of forefront research.

Program of the Course

Sunday, Sept. 23: Arrival/Registration

Monday, Sept. 24:

08.30-08.45 Welcome and introduction

08.45-10.15 Fundamentals of Gas Discharges I
N.St.J. Braithwaite

10.30-12.00 Fundamentals of Gas Discharges II
M.C.M. van de Sanden

14.00-15.30 Capacitively Coupled Discharges
W.J. Goedheer

16.00-17.30 Inductively Coupled Plasmas, ECR and Helicon Discharges
M. Krämer

18.00 "Heraeus"- Conference Dinner

Tuesday, Sept. 25:

08.30-10.00 Microwave Discharges, Surface Wave Discharges
J. Berndt

10.30-12.00 High Pressure Thermal Plasmas and Sources I
P. Fauchais

14.00-15.30 High Pressure Thermal Plasmas and Sources II
P. Fauchais

16.00-17.30 High Pressure Plasmas off Equilibrium: DBD
G. Pietsch

19.00-21.30 Poster Session I

Wednesday, Sept. 26:

08.30-10.00 Electron Kinetics in Atomic and Molecular Plasmas
J. Loureiro

10.30-12.00 Monte Carlo Models of Electron and Ion Transport in Non-Equilibrium Plasmas
S. Longo

Wednesday afternoon: Outing

Thursday, Sept. 27:

08.30-10.00 Diagnostics I: Basics of Plasma Spectroscopy
D.C. Schram

10.30-12.00 Diagnostics II
G.M.W. Kroesen

14.00-15.30 Diagnostics III: Langmuir probes
J. Allen

16.00-17.30 Processes in Molecular Plasmas
A. Ricard

19.00-21.30 Poster Session II

Friday, Sept. 28:

08.30-10.00 Influence of Ro-Vibrational Excitation on the Kinetics of Plasmas in Molecular Gases
J. Bretagne

10.30-12.00 Surface Processes during Thin-Film Growth
A. von Keudell

End of the Course

Weekend (Participants of Course and Master Class): Free for Excursions

Program of the Master Class

Sunday, Sept. 30: Arrival/Registration

Monday, Oct. 1:

08.30-10.00 Complex Plasmas, Basic Forces, Coulomb Crystal
H. Thomas

10.30-12.00 Particle Charging, Interaction Potential and Vertical Ordering
in Complex Plasmas
A. Melzer

14.00-15.30 Oscillations and Waves in Complex Plasmas
A. Piel

16.00-17.30 Dust Formation in Reactive Plasmas
Ch. Hollenstein

Tuesday, Oct. 2:

08.30-10.00 Technological Aspects
H. Kersten

10.30-12.00 Microgravity
U. Konopka

14.00-15.30 Interstellar Dust
E. Krügel

End of the Master Class