International School on Low Temperature Plasma Physics: Basics and Applications and Master Class

PLASMA SCHOOL

**Bad Honnef** 



The "International Summer School on Low Temperature Plasma Physics: Basics and Applications" was founded in 1996 and continues to this date with growing success.

The main purpose of the School is to give new graduate MSc / PhD students from all over the world a solid introduction and a concise overview of low-temperature plasma physics and to serve as a forum for coherent education in plasma science. The school has thus become a genuine part of the curricula of many of the participating universities.

Its "Master Class" addresses each year new hot topics at the level of forefront research.

# The School was first organized by Daniel C. Schram as a Socrates/Erasmus School at Eindhoven from 1996-2000.



#### INTENSIVE COURSE - CLTPP-2

SOCRATES / ERASMUS

#### Course on Low Temperature Plasma Physics and Applications

Eindhoven, The Netherlands July 3-9, 1997

Master Class on Plasma Deposition July 10-11, 1997

Erasmus/Socrates Committee: M.Capitelli J. Conrads P. Fauchais C.M. Ferreira M. Fitaire G. Turban J. Uhlenbusch J. Uhlenbusch J. Winter D.C. Schram Local Organizing Committee: D.C. Schram (chairman) J. Loonen (secretary) G.J. Meeusen (secretary CPS) S. Brussaard E. Kessels R. Severens E. Nagelkerke (local coördinator Socrates)

REGISTRATION DEADLINE: 23 May 1997!!

Support:

CPS CENTRUM VOOR PLASMAFYSICA EN STRALINGSTECHNOLOGI

Erasmus/Socrates

Graduiertenkolleg HTPP Arbeitsgemeinschaft Plasmaphysik (APP) Many colleagues, experts in their field, and all dedicated teachers from european universities volunteered as lecturers just for the reimbursement of their travel expenses.

They set the standard for high quality education in plasma science in an open, liberal, unbiased, communicative atmosphere, open to any student wherever he or she came from. This, and the networking among the young people made the school a great success.



Daan and Mario Capitelli during the 1998 School





Jeanne Loonen, the heart of the organization



Unfortunately the EU Socrates financing stopped after five years. New ways had to be found in order to continue. I talked to the Heraeus Foundation, convinced them, and together with Marc Böke we organized during 24.9. - 2.10. 2001 the

260. WE-Heraeus-Seminar:

Course on Low Temperature Plasma Physics and Application with Masterclass

Since then the venue was the Physikzentrum Bad Honnef

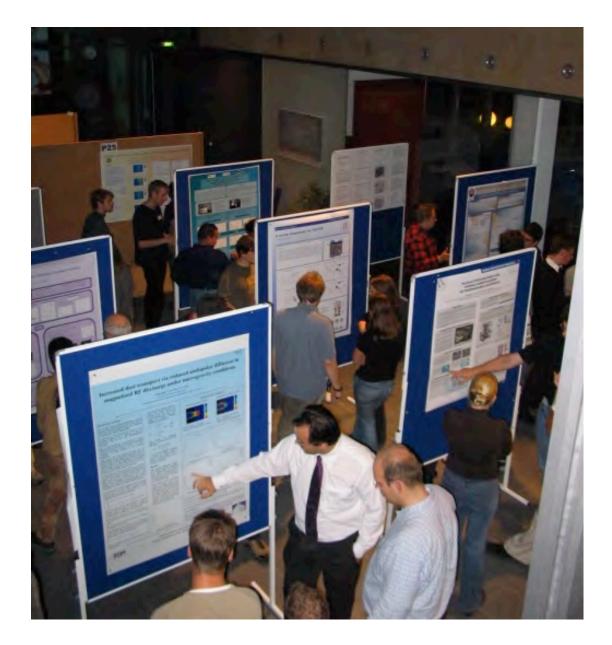






Nick Braithwaite explaining details of the sheath (Richard van de Sanden, student)

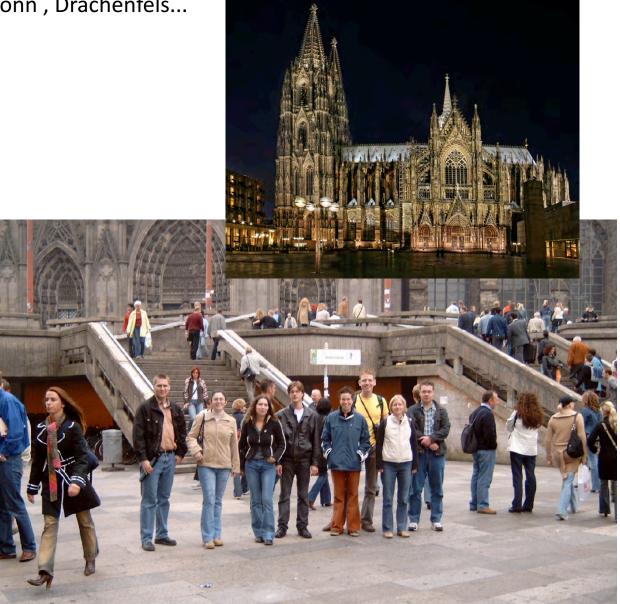
Ursel Fantz demonstrating Emission Spectroscopy



students were encouraged to show posters of their own work We were grateful to the Heraeus Foundation for financing the school for three years. Thereafter we aquired money from the EU in the FP6 program for one year, all a bit cumbersome. In 2005 all was financed by RUB.

In 2006 we started the joint venture with TUE where responsibility for the scientific part and operation of the school changed between TUE and RUB annually. Key persons were Richard Engeln and Richard van de Sanden at TUE and Marc Böke and myself at RUB, who co-chaired the school. Financing was shared, logistics always stayed at Bochum. Excursion to Cologne, Bonn, Drachenfels...



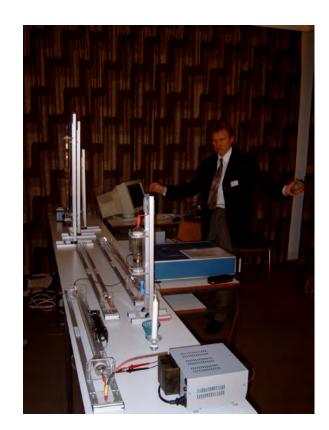






## **Public Evening Lectures**

Holger Kersten: *The Universe* – a World of Plasma



#### Plasma in Hollywood

Achim von Keudell Research Department Plasma Ruhr-University Bochum Germany Achim von Keudell: *Plasmas in Hollywood*  In 2013, we decided to move to a full-international managerial format, including a resident Local Organizing Committee (LOC) as well as a Local Scientific Committee and an International Chairman (IC), the latter chosen every year among the experienced lecturers. The IC responsibilities are mostly scientific, including the final design of the School's agenda (topics and lecturers) and the definition of the thematics for the Master Classes. If possible, the IC should also bring some financial support for the School's edition he/she is responsible for.

#### 2016

LSC: Marc Böke, Volker Schulz-von der Gathen, Achim von Keudell (Experimental Physics II, RUB, Bochum) LOC: Verena M. Scharf (RD Plasma, RUB, Bochum)

IC: Luís L. Alves, Vasco Guerra (IST, Lisbon)



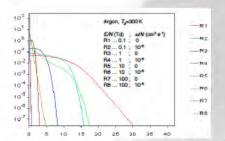
### **Recent Innovations are**

## **Modeling workshop** – since about four years





Workshop Hands on a Boltzmann solver L.L. Alves (IPFN/IST, Portugal) Oct. 4 (Tuesday) afternoon/evening



Students (max 5 groups of 2) Pre-registration required PLASMA SCHOOL Bad Honnef Low Temperature Plasma Physics: Basics and Applications October 2 – 6, 2016

#### **Experimental Workshop** – since 2015





Students (maximum of 10) Pre-registration required

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Bad Honnef Low Temperature Plasma Physics: Basics and Applications October 2 – 6, 2016









I am deeply grateful to the many friends who served as teachers at the schools, most of them for many years. This is really service above self. They deserve all the merits for making the school a success. It is now an internationally well known and respected brand.

I think our school is on solid grounds for years to come. This is due to a healthy base with a long tradition, due to modern improvements in structure, incoporation of modern elements in the scientific program and most importantly due to a group of highly motivated lecturers and young researchers.

We are very happy about the modernization and enlargement of the Physikzentrum without loss of its unique enspiring character.

Thanks for listening to one of the dinosaures of the school. It is great to have friends and colleagues like you!

## more than 120 teachers from 16 countries

Allen	J.
Alves	L.
Aparicio	F.
Awakowicz	Ρ.
Banine	V.
Belmonte	Т.
Benedikt	J.
Berndt	J.
Boeuf	J. P.
Bogaerts	Α.
Böke	М.
Bouchoule	Α.
Boufendi	L.
Boulos	М.
Braithwaite	N. St. J.
Bretagne	J.
Brinkmann	R. P.
Bruggeman	Ρ.
Capitelli	М.
Chabert	Ρ.
Conrads	J.
Cornier	JM.
Creatore	M. A.
Czarnetzki	U.
d'Agostino	R.
de Hoog	F. J.
de Jonge	W.M.
Dinescu	G.

Döbele	H. F.	
Dreisigacker	Ε.	
Esenwein	S.	
Fantz	U.	
Fauchais	Р.	
Ferreira	C.	
Fitaire	M.	
Gans	Т.	
Gleizes	Α.	
Goedheer	W. J.	
Graham	В.	
Graves	D.	
Guaitella	0.	
Guerra	V.	
Heberlein	J.	
Hecimovic	Α.	
Helbig	V.	
Hollenstein	Chr.	
Jacob	J.	
Janssen	G.M.	
Jaspers	R.	
Kempkens	Н.	
Kersten	Н.	
Kessels	W. M. M.	
Kogelschatz	U.	
Konopka	U.	
Krämer	M.	
Kroesen	G. M. W.	
Krügel	E.	

Kushner	М.	
Laux	С.	
Leys	C. C. M. A.	
Lieberman	M. A.	
Longo	S.	
Loureiro	J.	
Maguier	Ρ.	
Marec	J.	
Massines	F.	
Melzer	Α.	
Mentel	J.	
Möller	١.	
Murphy	Α.	
Music	D.	
Nikiforov	Α.	
Nozaki	Т.	
O'Connell	D.	
Ohl	Α.	
Paulussen	S.	
Piel	S. A.	
Pietsch	G.	
Pitts	R.	
Pouvesle	J. M.	
Reiter	D.	
Ricard	Α.	
Riemann	KU.	
Roozeboom	F.	
Röpcke	J.	
Rossi	F.	

Sadeghi	N		
Samm	U.		
Schlüter	Н.		
Schmidt	М.		
Schoenbach	К.		
Schrader	С.		
Schram	D. C.		
Schultz-von-der-			
Gathen	V		
Shama	К.		
Sluijter	F. W.		
Soltwisch	Н.		
Stoffels	Ε.		
Stoffels	W.		
Tachibana	К.		
Thomas	Н.		
Turban	G.		
Turner	М.		
Uhlenbusch	J.		
Vach	Н.		
van de Sanden	M. C. M.		
van der Mullen	J. A. M.		
van der Weil	М.		
van Engeln	R. A. H.		
van Helden	J. H.		
van Rooij	G.		
von Keudell	Α.		
von Woedtke	Т.		
Voronov	Α.		
Wagner	НЕ.		
Welzel	S.		
Whitehead	С.		
Wiesemann	К.		
Wilhelm	R.		
Winter	J.		
Wolf	R.		

This year's sponsors of the school:

RD Plasma (RUB), Instituto de Plasmas e Fusão Nuclear, Réseau des Plasmas Froids, Deutsche Forschungsgemeinschaft within SFB-TR 87

	17 1 11		Tachihana K
	•		Tachibana K.
Döbele H. F.			Thomas H.
Dreisigacker E.	Kroesen G.M.W.	Pouvesle J. M.	Turner M.
Esenwein S.	Krügel E.	Reiter D.	Uhlenbusch J.
Fantz U.	Kushner M.	Ricard A.	Vach H.
Fauchais P.	Laux C.	Riemann K. U.	van de Sanden M.C.M.
Ferreira C. +	Leys C.	Roozeboom F.	van der Mullen J.A.M.
Fitaire M.T.	Lieberman M.A.	Röpcke J.	van Engeln R. A. H.
Gleizes A.	Longo S.	Rossi F.	van Helden J. H.
Goedheer W.	Loureiro J.	Sadeghi N.	van Rooij G.
Graham B.	Maguier P.	Samm U.	von Keudell A.
Graves D.	Massines F.	Schmidt M.	von Woedtke T.
Guaitella O.	Melzer A.	Schoenbach K.	Voronov A.
Guerra V.	Mentel J.	Schrader C.	Wagner HE.
Heberlein †	Möller W.	Schram D.C.	Welzel S.
Hecimovic A.	Murphy A.	Schultz-von-der-	Whitehead C.
Hollenstein Ch.	Music D.	Gathen V.	Wiesemann K.
Jacob W.	Nikiforov A.	Shama K.	Wilhelm R.
Jaspers R.	Nozaki T.	Sluijter F. W.	Winter J.
Kersten H. Kessels	O'Connell D.	Soltwisch H.	Wolf R.
W.M.M.	Ohl A.	Stoffels E.	
Kogelschatz U. †	Piel A.	Stoffels W.	
	Esenwein S. Fantz U. Fauchais P. Ferreira C. † Fitaire M.T. Gleizes A. Goedheer W. Graham B. Graves D. Guaitella O. Guerra V. Heberlein † Hecimovic A. Hollenstein Ch. Jacob W. Jaspers R. Kersten H. Kessels W.M.M.	Döbele H. F.Krämer M.Dreisigacker E.Kroesen G.M.W.Esenwein S.Krügel E.Fantz U.Kushner M.Fauchais P.Laux C.Ferreira C. †Leys C.Fitaire M.T.Lieberman M.A.Gleizes A.Longo S.Goedheer W.Loureiro J.Graham B.Maguier P.Graves D.Mentel J.Guerra V.Mentel J.Heberlein †Möller W.Hollenstein Ch.Murphy A.Jacob W.Nikiforov A.Jaspers R.O'Connell D.W.M.M.Ohl A.	Döbele H. F.Krämer M.Pitts R.Dreisigacker E.Kroesen G.M.W.Pouvesle J. M.Esenwein S.Krügel E.Reiter D.Fantz U.Kushner M.Ricard A.Fauchais P.Laux C.Riemann K. U.Ferreira C. †Leys C.Roozeboom F.Fitaire M.T.Lieberman M.A.Röpcke J.Gleizes A.Longo S.Rossi F.Goedheer W.Loureiro J.Sadeghi N.Graves D.Maguier P.Samm U.Guaitella O.Melzer A.Schoenbach K.Guerra V.Mentel J.Schrader C.Heberlein †Möller W.Schram D.C.Hollenstein Ch.Murphy A.Schultz-von-der-Jacob W.Nikiforov A.Shama K.Jaspers R.Nozaki T.Sluijter F. W.W.M.M.Ohl A.Stoffels E.