

Report, "Fundamental Problems in Statistical Physics XII"

Summary

The International Summer School "Fundamental Problems in Statistical Physics" has been held roughly every four years, dating back to the first edition which took place in Breukelen, The Netherlands, in 1961. Since then, the school has been organized in several European countries (the Netherlands, Poland, Norway, Germany and Belgium). The invited speakers have always been among the leading scientists in the field of Statistical Mechanics/Physics. Interestingly, a significant fraction of the currently leading scientists in this field have been participants in this school when they were still in their PhD/postdoc years. The 2009 edition continued the tradition, featuring lectures by leading researchers in the field and seminars of current top-level research in statistical physics.

"Fundamental Problems in Statistical Physics" was held for the twelfth time in the summer of 2009, in European Centre La Foresta, a former Franciscan monastery located in the surroundings of Leuven at 25 km from Brussels. Participants arrived to La Foresta on Sunday, August 30 in the afternoon/evening. Lectures began on Monday, August 31 in the morning. The last lecture was on Friday evening, September 11. Participants left on Saturday morning Sept. 12, after breakfast.

Description of the scientific content

The scientific content of the summer school consisted of 10 lecturers, each providing 4 hours of education, and 8 one-hour seminars, a two-minute poster presentation by each participant, and two poster sessions, in which the participants presented their research.

Organizers

The school was chaired by Prof. Gerard T. Barkema (University of Utrecht and University of Leiden). Co-chairs were Prof. Enrico Carlon (K.U. Leuven) and Prof. Gunther Schütz (FZ Jülich). The local organizing committee consisted of Prof. Enrico Carlon, Dr. Marco Baiesi, Dr. Thomas Gilbert, Prof. Philippe Ruelle and Prof. Carlo Vanderzande.

The lectures were:

Coarsening	Leticia Cugliandolo (Paris)
Introduction to biology and to selected problems in cancer	Eytan Domany (Weizmann) Erwin Frey (München)
Spatial models in evolutionary game theory	
Multifractality and freezing phenomena in Random Energy Models	Yan Fyodorov(Nottingham) Martin van Hecke (Leiden)
Jamming	
Wetting phase transitions and critical phenomena in condensed matter	Joseph Indekeu (Leuven)
Nonequilibrium thermodynamics at the microscale: work relations and the second law	Christopher Jarzynski (Maryland)
Brownian functionals and their applications	Satya Majumdar (Paris)
Statistical Mechanics of systems with long range interactions	David Mukamel (Weizmann)
Ionic screening in soft matter	Rene van Roij (Utrecht)

The seminars were:

Boltzmann's explanation of the arrow of time	Jean Bricmont (Louvain)
Random matrices and the asymmetric exclusion process	Patrik Ferrari (Bonn) Udo Seifert (Stuttgart)
Stochastic thermodynamics	
Biofluidynamics - From Vesicles to Blood Flow	Gerhard Gompper (Jülich)
RNA folding	Henri Orland (Saclay)
Entropy and Frenesy, on response in nonequilibrium systems	Christian Maes (Leuven)
Out-of-equilibrium phase transitions in systems with long-range interactions	Stefano Ruffo (Florence)
Rheology of foams and the jamming point of granular matter	Wim van Saarloos (Leiden)

Participants

The summer school was attended by 86 participants, coming from 22 different countries. These participants were selected from a larger number of applicants, based on their achievements in statistical physics and letters of recommendations. The selected participants were typically working towards a Ph.D. in an area of statistical physics, or beginning postdoctoral researchers. Initially, more than 86 applicants were admitted to the summer school, but due to visa problems, in particular in India, social unrest in Iran, and various other reasons, a number of admitted applicants could not participate.

Financial overview

Expenses:

La Foresta	56400.13
Travel expenses lecturers	5032.16
Travel expenses seminar speakers	1159.59
Expenses organizers	340.76
Travel grants, participants (6) (from India (2), Argentina (2), Brazil and Iran)	1500.00
Sunday excursion to Brugge	1133.54
Taxi costs, departure day	280.00
Secretarial / administrative costs	1279.14
Proceedings (Elsevier)	6275.00
<hr/> Total expenses	<hr/> 73400.32

Income:

Registration fees	53350.00
FWO	4706.25
FNRS	2758.25
Lorentz fund	6500.00
Stichting Physica	3000.00
EPSD	1002.20
Drinks, old proceedings sold	1803.00
Deficit	280.62
<hr/> Total expenses	<hr/> 73400.32