

# Extreme Events in Complex Dynamics

- Seminar October 23 - 27, 2006 ●
- Workshop October 30 - November 2, 2006 ●

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Extreme events challenge human life and civilization in many ways, such as in the form of extreme precipitation events and floods, by earthquakes, by network failures (power supply, internet, traffic networks), by extreme socio-political events and by extreme economical events. Due to their high potential damage, extreme events receive considerable attention in the corresponding specific disciplines. On an abstract level, the potential of a system to create extreme events, i.e., to generate large deviations from its average behaviour, is an intrinsic property of complex dynamics.

The focus will be on the issues of potential universality, of modelling, of prediction and verification, trying to establish links between phenomena and theoretical concepts. We intend to bring together experts of the different fields which can contribute to a comprehensive view of extreme events. Hence, on this meeting the phenomenology of extreme events in different systems will be presented and opposed to potentially relevant theoretical concepts and model classes. Among the goals are to identify sufficient and necessary conditions for systems to create extreme events, to identify mechanisms leading to extremes in the near future in view of prediction, and of advancing theories such as extreme value statistics and the theory of large deviations into a state applicable to nonlinear, long range correlated processes. Physical abstraction and the expertise of, e.g., critical phenomena, nonlinear dynamics, statistical physics, turbulence, SOC and other areas will be one necessary input. Mathematical theories such as bifurcation theory, dynamical systems, stochastics, statistics, will be another. The phenomenology of extreme events in many applied fields will set the challenges in particular for modelling and prediction, but also for the general understanding. The invited speakers represent this rather wide range of different approaches.

## INVITED SPEAKERS INCLUDE:

L. Bogachev (Leeds)	A. Bunde (Giessen)	J. Casti (Vienna)	P. Deheuvels (Paris)
S. Dobrokhov (Moscow)	R. S. Ellis (Massachusetts)	M. Ghil (Paris)	P. Hänggi (Augsburg)
D. Helbing (Dresden)	S. Hergarten (Graz)	P. Holdsworth (Lyon)	P. Imkeller (Berlin)
K. Lehnertz (Bonn)	M. Lehning (Davos)	R. Mahnke (Rostock)	R. Mantegna (Palermo)
M. Marsili (Trieste)	K. Nagel (Berlin)	J. Peinke (Oldenburg)	C. Pennetta (Lecce)
J. Portugali (Tel-Aviv)	Z. Racz (Budapest)	G. Schütz (Jülich)	L.A. Schmith (Oxford)
I. Sokolov (Berlin)	D. Sornette (Zürich)	E. Stanley (Boston)	D. Stauffer (Köln)
J. Steinebach (Köln)	S. Tanase-Nicola (Amsterdam)		

**Applications** are welcome and should be made by using the application form on the conference web page. Please note that the number of attendees is limited. The registration fee is €100, costs for accommodation and meals will be covered by the Max Planck Institute. In exceptional cases, limited funding is available to partly cover travel expenses.

**Deadline for applications is June 30, 2006.**



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