



PHYSIKZENTRUM BAD HONNEF, GERMANY

373. Wilhelm und Else Heraeus-Seminar on

**Anomalous Transport:  
Experimental Results and Theoretical Challenges**

July 12 - 16, 2006

**Scientific coordinators:**

**Rainer Klages**

Queen Mary, University of London  
United Kingdom

**Günter Radons**

TU Chemnitz  
Germany

**Igor M. Sokolov**

Humboldt-Universität zu Berlin  
Germany

Anomalous transport phenomena such as sub- and superdiffusion, non-Gaussian probability distributions, aging and dynamical localization form a rapidly growing research area within nonequilibrium statistical physics. Understanding these processes demands for establishing new cross-links between non-Markovian microscopic correlations and unusual statistical properties on macroscopic scales. This requires to combine methods from dynamical systems theory, stochastic processes and disordered systems.

The seminar will provide a unique opportunity to learn about topics ranging from mathematical foundations of anomalous dynamics to the most recent experimental results in this field. It attempts to initiate new cross-disciplinary collaborations between scientists from the above research areas and to foster fruitful interactions between theorists and experimentalists working on anomalous transport.

**Scientific key topics are:**

- **Applications:** Experimental results for anomalous transport under nonequilibrium conditions such as anomalous dispersion in flows, transport in porous media, aging in glassy systems, anomalous diffusion of biological cells and in cell membranes, surface diffusion, anomalous distributions in granular media and in plasma physics
- **Theoretical methods and models:** nonhyperbolic dynamics, intermittent deterministic transport, disordered dynamical systems, Lévy walks, Lévy flights, random walks in random environments, dynamical phase transitions, classical dynamical localization, thermodynamic formalism, continuous time random walks, fractional calculus

**Keynote speakers:**

R.Artuso (Como), R.Balescu (Brussels), E.Barkai (Bar-Ilan), C.Beck (London), D.Brockmann (Göttingen), A.V.Chechkin (Kharkov), D.Del-Castillo-Negrete (Oak Ridge), P.Dieterich (Dresden), R. Friedrich (Münster), R.Gorenflo (Berlin), R.Hilfer (Stuttgart), R. Valiullin (Leipzig), R.Kimmich (Ulm), J.Klafter (Tel Aviv), W.Kob (Montpellier), A.Kusumi (Kyoto), E.Lutz (Ulm), F. Mainardi (Bologna), R.Metzler (Copenhagen), M.J.Saxton (Davis), M.Shlesinger (Arlington), S.Tasaki (Waseda), G.Vogl (Vienna), A.Vulpiani (Rome), M.Wilkinson (Milton Keynes), S.Yuste (Badajoz)

Applications are welcome and should be made by using the application form on the conference web page, however, the number of attendees is limited. The seminar's registration fee is € 200 and will cover accommodation and meals.

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

Further information is available on the conference webpage or from the organizers:

<http://anotrans.physik.hu-berlin.de>

[r.klages@qmul.ac.uk](mailto:r.klages@qmul.ac.uk)

[radons@physik.tu-chemnitz.de](mailto:radons@physik.tu-chemnitz.de)

[igor.sokolov@physik.hu-berlin.de](mailto:igor.sokolov@physik.hu-berlin.de)