



Fritz-Haber-Institut der Max-Planck-Gesellschaft, Humboldt-Universität zu Berlin,
Max-Delbrück-Centrum für Molekulare Medizin, Otto-von-Guericke-Universität
Magdeburg, Physikalisch-Technische Bundesanstalt, Technische Universität Berlin,
Universität Potsdam

Berlin Center for Studies of Complex Chemical Systems

Seminar

Complex Nonlinear Processes in Chemistry and Biology

Honorary Chairman: G. Ertl

Organizers: M. Bär, C. Beta, H. Engel, M. Falcke, M. J. B. Hauser, J. Kurths, A. S. Mikhailov, P. Plath, L. Schimansky-Geier, and H. Stark

Friday, June 19, 2015, at 16:00

Address: Richard-Willstätter-Haus, Faradayweg 10, 14195 Berlin, U-Bahnhof Thielplatz (U3)

Dr. Fumito Mori

Fritz-Haber Institut Berlin

Network design for precise collective oscillations and invariant measurement for oscillation precision in complex systems

I will talk about two topics involving precise oscillations that play an important role in such biological functions as circadian clocks and cell division. The first topic is the network design for precise oscillations in genetic systems with internal noise. We have used a genetic network model with internal noise and inhibitory interactions and, by employing evolutionary optimization algorithms, constructed networks showing precise oscillations. Properties of the designed networks will be discussed. The second topic is the quantification of precision of collective oscillations in complex dynamical systems with noise.