



## Einladung

- Es spricht: **Xavier Porte Parera**  
IFISC, Campus Universitat de les Illes Balears, Mallorca
- Zeit: **Montag, 09. November 2015, 10:30 Uhr**
- Ort: **Technische Universität Berlin  
Institut für Festkörperphysik  
Hardenbergstraße 36, 10623 Berlin  
Raum EW 561**
- Thema: **„Dynamics of delay-coupled semiconductor lasers“**

### Abstract:

Delay-coupled semiconductor lasers have become paradigmatic systems to study and take advantage of high-dimensional chaos. We present a detailed experimental characterization of the autocorrelation properties of delayed-feedback semiconductor lasers for different dynamical regimes. We find that these properties are determined by the ratios of the principal time scales. Based on this insight, we demonstrate similarity properties of the dynamics for long delays. We relate these findings to the mechanism for the emergence of strong chaos in delay-coupled semiconductor lasers.

Furthermore, we show that in many cases the autocorrelation function of the intensity dynamics can be approximated by the analytically derived autocorrelation function obtained from a linear stochastic model with delay. A set of dynamic parameters can be extracted from the fit with the analytic solutions of this model. The presented results have major consequences for the characterization and tailoring of the dynamics of delayed-feedback semiconductor lasers for applications.

Gäste sind herzlich willkommen!  
Prof. Dr. S. Reitzenstein