



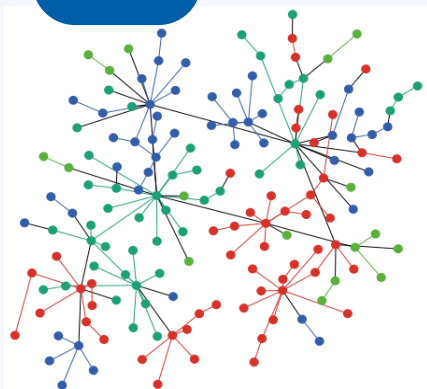
# Seminar



## ***Dynamics of Adaptive Networks***

**Prof. Dr. Dr.h.c. Eckehard Schöll, PhD,  
Dr. Anna Zakharova, Dr. Iryna Omelchenko**

**Summer Semester 2019  
EW 731 - Tuesdays 16:15**



The seminar offers perspectives on our current research in the area of Nonlinear Dynamics and Control. The seminar is particularly suitable for BSc and MSc students looking for a final project. Students, who want to obtain a *Seminarschein*, are welcome as well.

In physics, chemistry, biology, technology, and social sciences, one can find many examples of networks whose topologies evolve in time. In adaptive networks, the dynamics on the nodes and the dynamics of the links between the nodes are coupled to each other, producing emergent behavior that would not be seen in static network topologies. Recent research has shown that such networks can exhibit a plethora of new phenomena which are ultimately required to describe many real-world networks. These include robust self-organization, formation of complex global topologies based on simple, local rules, plasticity as it occurs in learning processes in the brain, and the spontaneous emergence of hierarchical multicluster structures, in which an initially homogenous population of network nodes self-organizes into functionally distinct classes.

In the focus of the seminar will be recent studies of adaptive networks, we will discuss the wide field of their applications, analytical studies, complex dynamics, modeling and predicting state-topology coevolution.

**Literature:** <http://www.itp.tu-berlin.de/schoell/nlds/seminare/>

### **Schedule and Organization**

If you are interested in a particular topic, please contact one of the advisors. Final assignment of the topics will be done on 09.04.2019.

### **Contact**

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Theoretical methods and concepts of application