



PHYSIKALISCHES KOLLOQUIUM

Referent: **Prof. Dr. Jan Carl Budich**
Institut für Theoretische Physik,
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Thema: **Topological Quantum Matter far from Equilibrium**
(Antrittsvorlesung)

Zeit und Ort: Dienstag, 12.12.2017, 16:40 Uhr
Rechnagel-Bau, Hörsaal REC/C213, Haeckelstr. 3

Leiter: Sprecher der Fakultät Physik Prof. Dr. Roland Ketzmerick

Kurzfassung: The discovery of topological phases has revolutionized our scientific understanding of the various forms of matter occurring in nature. Rather than being characterized by local order parameters reflecting spontaneous symmetry breaking, topological phases are distinguished by global properties that lead to robust and topologically quantized observables. The recent experimental progress on synthetically realizing topological phases with ultracold atomic gases now provides a natural platform to investigate their dynamical properties far from thermal equilibrium. This presentation will start with a widely accessible introduction to the field of topological insulators. Thereafter, I will discuss key questions relating to the interplay of non-equilibrium dynamics and topology in quantum many-body systems, and present some of our recent work aimed at addressing these questions. In particular, I will show how observables of topological origin such as a quantized Hall response can build up and equilibrate dynamically in quenched systems.

Biographie: After studying Physics and doing his PhD at the University of Würzburg, Jan Budich moved to Sweden in October 2012 for his first postdoc at Stockholm University. In January 2014, he moved on to Austria for his second postdoc at the University of Innsbruck, where he stayed until September 2016. In October 2016, he moved back to Sweden for an Associate Senior Lecturer (Tenure-Track) position at the University of Gothenburg. As of October 2017, he is holding the Chair of Quantum Many-Body Theory at the Institute of Theoretical Physics at TU Dresden.

