

Bonn-Cologne Graduate School of Physics and Astronomy

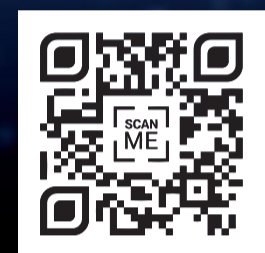
Intensive Week Course

Introduction to topological insulators and their implementations in artificial matter setups

March 13-17, 2017, 9⁰⁰-12⁰⁰ / 13⁰⁰-16³⁰

Lecture hall, Institut für Angewandte Physik, Bonn

For more information, see: <http://topo2017.iap.uni-bonn.de/>



Lecturers:

Dr. Janos K. Asbóth (Wigner Research Center for Physics, Budapest)

Dr. Andrea Alberti (Universität Bonn)

Abstract:

The intensive week consists of lectures introducing graduate students to the very active research field of topological insulators. Participants are required to have good knowledge of basic quantum mechanics, and familiarity with basic concepts in condensed matter physics (Bloch theorem, energy bands, etc.). No prior knowledge of topology is assumed.

The main body of the intensive week is a course held by J. K. Asbóth, based on the lecture notes "A Short Course on Topological Insulators", freely available at <https://arxiv.org/abs/1509.02295>. Through simple one- and two-dimensional model Hamiltonians, participants will acquire a good physical understanding of the

core concepts of topological insulators. This is complemented by A. Alberti, presenting a selection of modern experiments demonstrating topological effects in ultracold atoms and nanophotonics setups. Additionally, guest speakers will give an introduction to "frontier" research topics in this field. The course will be accompanied by laboratory tours, exercise and interactive discussion sessions in the afternoon.

Students who pass a short examination on Friday – consisting of a written part (mostly simple conceptual questions) and a brief oral part – will obtain credit points.

No fees are required. Due to organizational reasons, we require you to register by sending an email to alberti@iap.uni-bonn.de on or before March 5th. Please indicate upon registration whether you need the credit points.

