universität innsbruck

Department of Theoretical Physics

Theory Colloquium

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"Topological phases of matter: From classification to detection in experiments"

Abstract

Condensed matter is found in a variety of phases, the vast majority of which are characterized in terms of symmetry breaking. For example, magnets spontaneously break time-reversal and spin rotation symmetries. A notable exception was provided by the discovery of the quantum Hall effects which exhibit new kinds of topological orders not associated with any symmetry breaking. One of the characterizing features of topological order is the existence of excitations with exotic properties. These so-called anyonic excitations might make topologically ordered systems ideal building blocks of fault-tolerant quantum computers.

In this talk, I will start by giving a general introduction to the concept of topological order and then address some of the recent developments. In particular, I will introduce theoretical frameworks that allow us to classify topological phases and discuss dynamical signatures that are useful to detect them in experiments.

Wednesday | 04.12.2019 | 16:30

SR 1 | ICT building