



KONWERSATORIUM INSTYTUTU FIZYKI UMCS

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“Dynamical Phase Transitions in Topological Insulators

The traditional concept of phase transitions has, in recent years, been widened in a number of interesting ways. The concept of a topological phase transition separating phases with a different ground state topology, rather than phases of different symmetries, has become a large widely studied field in its own right. Additionally an analogy between continuous phase transitions, described by non-analyticities in the derivatives of the free energy, and non-analyticities which occur in dynamically evolving correlation functions has been drawn. These are called dynamical phase transitions and one is typically now far from equilibrium. In this seminar we will consider how dynamical phase transitions can be used to shed light on topological phase transitions and topological phases. We will go on to consider the effect that topologically protected edge states, one of the interesting consequences of topological phases, have on dynamical phase transitions. We will then generalise the concept of dynamical phase transitions to mixed states and open systems, in order to study what happens in the experimentally relevant situations where the system is either in a thermal state rather than the ground state, or connected to an external environment.

Uprzejmie zapraszam wszystkich pracowników, doktorantów i studentów Instytutu Fizyki.

Dr hab. Ryszard Zdyb, prof. UMCS
Dyrektor IF UMCS