

Invitation to IQST Seminar

on Thursday, May 24th, 2018, 11am
Ulm University
N25, Room 4413
Albert-Einstein-Allee 11



Dr. Mario Collura

Department of Physics, University of Oxford

Order-parameter statistics out-of-equilibrium in many-body quantum systems

At the base of quantum mechanics is the statistical nature of measurements: the result of measurements is indeed described by a probability distribution function (PDF), and measuring the same observable in identical systems will give different outcomes in accordance with this distribution.

The PDF carries very detailed information about the system, going much beyond the simple average.

I will focus on the non-equilibrium dynamics of a fully polarised antiferromagnetic state under the unitary evolution induced by the XXZ Hamiltonian.

It turns out that, depending on the quantum phase whereto the post-quench Hamiltonian belongs, the PDF of the subsystem staggered magnetisation may retain informations about the original order, thus acquiring a shape much different from a simple Gaussian distribution.

This has a simple explanation in terms of the distribution of the overlaps between the initial state and the eigenstate of the post-quench Hamiltonian.