LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

LEHRSTUHL FÜR THEORETISCHE NANOPHYSIK
PROF. DR. ULRICH SCHOLLWÖCK
PROF. DR. LODE POLLET

# Condensed Matter Theory Seminar

**Thursday, 25th February, 2016**
**10.00 am**

Room A 450, Theresienstr. 37, IV

**Peter Prelovšek**

**J. Stefan Institute and Faculty of Mathematics and Physics, Ljubljana, Slovenia**

## Dynamics and ordering in random spin chains

Recent NMR and μSR experiments on antiferromagnetic spin-chain materials stimulated renewed interest in random-bond quantum models. With the central concept being random singlets we present the numerical analysis confirming a large span of local spin relaxation times and their anomalous temperature dependence. A weak interchain exchange coupling in such systems leads to a long range antiferromagnetic order, as also observed experimentally. Theoretical results for the ordering temperature as well as for local moments and their probability distribution in quasi-1D systems will be shown. The most pronounced effect of the randomness in this case is the large span of local magnetic ordered moments, becoming wider with decrasing interchain coupling. Another challenging aspect in connection with random spin chain is the possibility of many-body localization which will be considered in the classical version of the spin chain.

gez. PD Dr. Fabian Heidrich-Meisner