Contribution ID: **27** Type: **not specified**

A new proposal to discern the transverse-field Ising chain universality

Saturday, 11 December 2021 10:30 (20 minutes)

There has been considerable recent progress in identifying candidate materials for the transverse-field Ising chain (TFIC), a paradigmatic model for quantum criticality. Here, we study the local spin dynamical structure factor of different spin components in the quantum disordered region of the TFIC. We show that the low-frequency local dynamics of the spins in the Ising- and transverse-field directions have strikingly distinctive temperature dependencies. This leads to the thermal-activation gap for the secular term of the NMR $1/T_2$ relaxation rate to be half of that for the $1/T_1$ relaxation rate. Our findings reveal a new surprise in the nonzero-temperature dynamics of the venerable TFIC model and uncover a means to evince the material realization of the TFIC universality.

Primary author: Mr YANG, Jiahao (Tsung-Dao Lee Institute)

Presenter: Mr YANG, Jiahao (Tsung-Dao Lee Institute)

Session Classification: Quantum Session II