



SHENZHEN UNIVERSITY



Institute for Advanced Study

Physics Seminar

Pre-thermalized Space-time Crystal and Chiral Information Flow

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Abstract:

In this seminar talk, I will present a pedagogical description of the phenomenon of pre-thermalization and possible time crystal phase in the pre-thermal regime. Recently, periodically driven system has attracted lots of attention. New phases have been discovered with no static analogue. Spontaneously breaking of such a discretized time translation symmetry, i.e. time crystal, serves as one interesting example. However, closed periodically driven many-body system tends to thermalize, namely heat up to a featureless infinite temperature. To remedy this situation, a general framework of pre-thermalization has been developed, where system is governed by a static Hamiltonian at finite temperature before a characteristic time scale. In this pre-thermal regime, physical observable can indeed process a time crystal like oscillation instead of vanishing featurelessly. Moreover, a possible generalization of this idea to a space-time crystal will be mentioned.

About the speaker:

Mr. Xiao-Tian Zhang graduated from School of Gifted Young, University of Science and Technology of China in 2013. He is a Phd student at International Center for Quantum Materials, Peking University, supervised by Prof. Ryuichi Shindou. Mr. Zhang works in the field of condensed matter theory, focusing on transport theory of strongly correlated systems, and topological aspects of matter. Mr. Zhang is expecting his Phd degree in the forthcoming year 2019, and moves to the University of Hong Kong as a postdoctoral research focusing on quantum spin liquid theory.

Date: July 30, 2018 (Monday)

Time: 10:00 - 11:30 pm

Venue: Room 650 Administrative Building, SZU