PHYSICS SEMINAR SERIES

TOPIC: Quantum Simulations of Non-equilibrium Dynamics with Ion Spin Chains

SPEAKER: Jiehang Zhang, University of Maryland College Park

TIME: 2:00-3:00pm, Thursday, June 14, 2018

VENUE: Room 264, Geography Building, Zhongbei Campus
(华东师范大学中山北路校区，地理楼 264 室)

HOST: Tim Byrnes, NYU Shanghai

ABSTRACT OF THE TALK

I will describe efforts on engineering quantum systems with individual trapped atomic ions. Qubits are represented by the internal levels of the ions, and are controlled with laser-driven interactions. Such a system presents an excellent coherence time and can find wide applications in quantum simulations and quantum computing. I will present recent experiments using these systems to study non-equilibrium matter, including discrete time-crystals [1], as well as dynamical phases [2]. A spin chain with individual resolution for more than 50 qubits enables many applications such as quantum sampling and optimization, and I will conclude with prospects in the future.


BIOGRAPHY

After undergraduate studies at University of Science and Technology of China (BS in 2009), Jiehang Zhang worked on a precision measurement experiment at University of Maryland and TRIUMF, Canada's national lab for nuclear and particle physics. His PhD work is concerned on using Atomic, Molecular, and Optical techniques for tests of fundamental symmetries. He then did a postdoc (2015-2018) on the quantum simulation experiments with trapped ion spin chains. He will assume a professorship position at New York University, starting in January of 2019.