

## Peng Xu

Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences

### *Single-Qubit Operations and Two-Qubit Entanglement with Individually Controlled Neutral Atoms*

Among various platforms for quantum computing and simulations, trapped neutral atoms offer unique advantages of long coherence time, scaling and excellent control of the interaction strength over 12 orders. However there are still several primary challenges to be solved. In this talk, I will present our recent experimental efforts towards two problems. One is extending single qubit coherence time using magic intensity dipole trap. The other is entangling two heteronuclear single atoms using Rydberg blockade for low crosstalk qubit measurement with a few  $\mu\text{m}$  qubit spacing.