

Condensed Matter Theory Seminar

Subject: **1D spinor quantum gas in the strongly interacting regime**

Speaker: **Prof. Han Pu (Rice University, Houston, USA)**

Date & time: **Friday, 26th of May 2023 at 3:15 p.m.**

Venue: **Room 01.114**

Abstract:

1D many-body systems have revealed a number of intriguing and unique quantum properties. The advent of cold atoms makes it possible to realize such 1D systems in controllable manner in the lab. In this talk, I will review our recent work on 1D spinor quantum gas in the strongly interacting regime. I will show that such strongly interacting system can be mapped to a weakly interacting one, which can be treated using a perturbation approach. This mapping allows us to see clearly the interplay between the spin and the charge degrees of freedom, the effects of quantum statistics, and forms the basis for efficient computation of important quantities such as one-body density matrix, the momentum distribution, etc.