

ICTS Seminar

- Title : Commensurability in quantum many-body systems
- Speaker : Masaki Oshikawa, University of Tokyo
- Date & Time : Lecture 1: Monday, December 16, 2019 (10:30 AM - 12:30 PM)
Lecture 2: Tuesday, December 17, 2019 (10:30 AM - 12:30 PM)
Lecture 3: Wednesday, December 18, 2019 (10:30 AM - 12:30 PM)
- Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore
- Abstract : In condensed matter physics, we are interested in macroscopic number of quantum-mechanical particles which are strongly interacting with each other. While quantitative predictions on properties of such systems are usually difficult, there are some general principles which put strong constraints on possible outcomes. In this series of lectures, I will focus on the implications of the "commensurability" defined by the number of particles per unit cell, which follow from the Lieb-Schultz-Mattis theorem and its generalizations. I will begin with a historic example of "Haldane gap" and a field-theory picture, and then discuss more general perspectives. I will touch some of the recent developments in the later part of the lectures.