ICTS Skype Seminar

Title : Emergent topological phases in periodically driven SO-coupled materials and their exotic bulk-edge correspondence

Speaker : Ruchi Saxena, Harish-Chandra Research Institute, Allahabad

Date : Tuesday, 19 December 2017

Time : 10:00 AM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : Dynamically driven topological phase transitions have been the focus of intense research recent times mainly because of our limited control to tune the topological invariant of a TI and also due to the scarcity of such topological materials in solid-state structures. I would like to talk about on our recent work on the time-periodically driven Spin-Orbit Coupled materials within the tight-binding approach. We focus on the low-frequency limit where one cannot expect the conventional bulk-edge correspondence which is utilized to study the edge physics from the bulk topology in the static systems. We explicitly show the phase diagrams which exhibit various interesting topological phases. We also study the finite geometry with a boundary to compute the edge spectrum and show that they possess unusual bulk-edge correspondence, unlike the static counterpart. We focus on one of the phase which is characterized by zero value of the topological invariant but possess robust chiral edge modes. We study the transport in this phases as well as the robustness of this phase in presence of disorder.