Chez Pierre

Presents ...

Monday, April 25, 2016
12:00pm Noon
MIT Room 4-331

Chez Pierre Seminar

Yong Baek Kim - University of Toronto

"Topology and Correlation in Quantum Materials with Strong Spin-Orbit Coupling"

Emergence of novel quantum ground states in correlated electron systems with strong spin-orbit coupling has been a recent subject of intensive studies. While it has been realized that spin-orbit coupling can provide non-trivial band topology in weakly interacting electron systems, as in topological insulators and semi-metals, the role of electron-electron interaction in strongly spin-orbit coupled systems has not been fully understood. The availability of new materials with significant electron correlation and strong spin-orbit coupling now makes such investigations possible. Many of these materials contain 5d or 4d transition metal elements; the prominent examples are iridium oxides or iridates. In this talk, we discuss recent theoretical and experimental progress on this subject, especially for possible realization of topological semimetal, non-Fermi liquid, large anomalous Hall effect, and quantum spin liquid.