**New Forms of Quantum Matter : Topological Insulators, Magnets to Weyl Fermions and Beyond**

Electrons in solids organize in ways to give rise to distinct phases of matter such as insulators, metals, magnets or superconductors. In the last ten years or so, it has become increasingly clear that in addition to the symmetry-based classification of matter, topological consideration of electronic wavefunctions plays a key role in determining distinct phases of matter [see, for an introduction, Hasan & Kane, Reviews of Modern Physics 82, 3045 (2010)]. In this talk, I briefly introduce these concepts in the context of their experimental realizations in real materials leading to most recent developments. I present how tuning a 3D topological insulator whose surface hosts an unpaired Dirac fermion can give rise to topological superconductors with helical Cooper pairing leading to novel Majorana platforms, Weyl fermion semimetals with “fractional” surface Fermi surfaces, and other topological nodal and magnetic states of matter. These new forms of quantum matter beyond the quantum Hall effect, harbor novel properties that may lead to the development of next generation device technologies accelerating the second quantum revolution.