Abstract:
Topological insulators are materials with their electronic band structure in bulk resembling that of an ordinary insulator, but the surface states are metallic. These surface states are topologically protected, meaning that they are robust against impurities. The topological phenomena of three-dimensional topological insulators can be expressed within topological field theories, predicting axion electrodynamics and the topological magnetoelectric effect. An experiment has been suggested to measure the topological phenomena. In this talk, the underlying theory and details around the experiment are explained.