Quantum Anomalies

YIWEN PAN — In classical theory, when a system has some continuous symmetry, then there’ll be corresponding conserved current satisfying conservation equation. However, when considering quantum field theory, classical symmetry or the corresponding conservation equation may break down, due to the ultraviolet or short distance behavior of the theory. The talk will start with brief review of classical symmetry and conservation laws, then proceed to the discussion of chiral symmetry and its break down, by triangular graph calculation and singular operator method. Its experimental effects will be briefly discussed. Then Path Integral methods and the relation between zero modes of Dirac operator and anomalies will be introduced.