PHY680: Applications of Topology in Many-Body Systems and in Quantum Field Theory, Professor Zohar Komargodski

We will go over examples in lattice systems and in quantum field theory where recent ideas from topology led to new powerful results. We will emphasize instances where topological invariants, anomalies, and dualities give sharp, non-perturbative constraints on dynamics. The goal is to build intuition for how purely topological reasoning can illuminate phases of matter, constrain RG flows, and classify possible low-energy behaviors.