



University of Crete
Department of Physics

Physics Colloquium

Thursday, 11 December 2025 | 17:00 – 18:00, Seminar Room 3rd Floor

On the continuum limit of SSH lattice

Prof. Fotios Diakonos

University of Athens

ABSTRACT

The Su–Schrieffer–Heeger (SSH) lattice model is nowadays regarded as the prototypical example of a one-dimensional topological insulator. Despite its apparent simplicity, it remains unclear how such a discrete system—and its associated topological properties—can be faithfully extended to the continuum. In this talk, I will present a continuous-space model that accurately reproduces the topological and spectral features of the SSH model. The proposed model is nonlocal, characterized by a parameter that sets the scale of nonlocality. Unlike previous continuous analogues based on Schrödinger- or Dirac-type Hamiltonians, this model preserves chiral symmetry, requires no external potential, and exhibits periodic energy bands. On finite domains, it supports a flat zero-energy band composed of a countably infinite set of exponentially localized edge states of topological origin.