

Nathan Seiberg

Title: Exotic Field Theories: Lifshitz Theory, Tensor Gauge Theory, and Fractons

Over the past few years, many exotic lattice systems with peculiar properties were found. Some of their peculiarities include particles with restricted mobility, large ground-state degeneracy, and long-distance sensitivity to short-distance details. Consequently, these theories do not have a standard continuum limit.

Together with Pranay Gorantla, Ho Tat Lam, and Shu-Heng Shao, we have explored these theories in detail using a field theory perspective.

In this talk, we will discuss the simplest examples of these theories, which are in one spatial dimension. These theories are not as rich and as robust as their higher-dimensional relatives. But they exhibit many of the subtleties in a simpler setting.