



Department of
Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

Exotic QFTs: Lifshitz Theory, Tensor Gauge Theory, and Fractons

(Zoom Seminar)

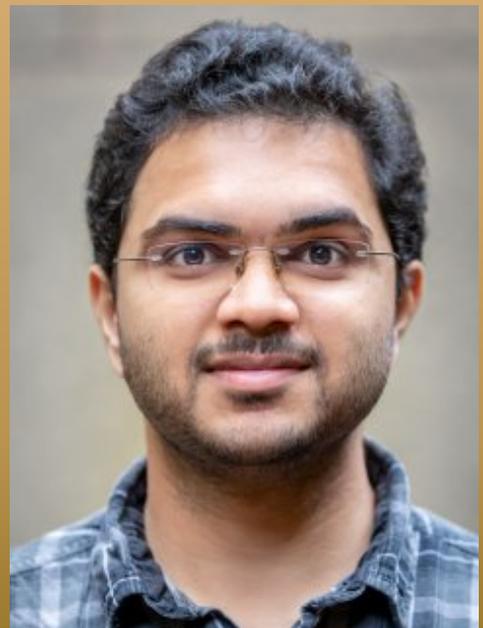
Pranay Gorantla

(Princeton)

Date: April 25, 2022

Time: 9 AM IST

Zoom link shall be shared separately



I will discuss some exotic QFTs which exhibit several peculiar features such as strange ground state degeneracy (GSD), defects with restricted mobility (a.k.a. fractons), and UV/IR mixing. I will focus on simple examples in 1+1d with dipole symmetries, including the compact Lifshitz field theory, and the symmetric rank-2 tensor gauge theory. Interestingly, in all our examples, there are several different continuum theories described by the same Lagrangian. I will also explain how the strange GSD and restricted mobility arise as consequences of space-like and time-like dipole global symmetries. Based on work with Ho Tat Lam, Nathan Seiberg, and Shu-Heng Shao (arXiv:2201.10589).