

# Physics Colloquium

Prof. Vijay Shenoy

## “Fractons: From Field to Plate”

I will review recently discovered and intriguing phase of matter -- the fracton phase. This phase supports excitations -- dubbed fractons -- that have “restricted (fractional) mobility”. I will describe a recently developed field theory where the fractons can be of “arbitrary order” (this concept will be explained in the talk) and can even be extended objects. I will argue that exotic fractonic systems with vector charges are hiding in plain sight -- on the paper we write on (an elastic plate) -- demonstrating why it is possible to cut a piece paper (with a pair of scissors) along an arbitrary curve drawn on it, yet can fold the paper (without crumpling) only along a straight line.

Vijay Shenoy obtained his Ph.D. from Brown University in 1998. He worked at Indian Institute of Technology Kanpur for a couple of years before moving to Indian Institute of Science Bangalore in 2002 where he is currently a Professor. His research interests are strongly correlated systems, topological phases. Prof. Shenoy received Shanti Swarup Bhatnagar Prize in 2013.

**Thursday December 3rd at 4:25 via Zoom**

**If you are outside the Lehigh Physics Department, please email Marina Long ([mal516@lehigh.edu](mailto:mal516@lehigh.edu)) for a link.**