Physics Colloquium

Dr. Adolfo Grushin

"Amorphous Topological Insulators in Theory and Experiment"

A central goal of contemporary material science is to find new, robust, and universal phenomena that can be technologically useful. Topological phases of matter are one of the most robust phases of matter, and host such potential. However, these phases are often understood and predicted with the help of crystal symmetries, although they don't rely on them to exist. By doing so we are forced to exclude a vast pool of amorphous materials, which are ubiquitous in technology and can display properties that surpass those of crystals. In this talk I will review how topological phases have been recently shown to emerge in non-crystalline systems, notably in amorphous systems, both in experiment and theory. The ubiquity and unique properties of amorphous systems combined with the robustness of topology has the potential to bring new fundamental understanding in our classification of phases of matter, and inspire new technological developments.

Adolfo Grushin is currently a permanent CNRS Research Fellow at Neel Institute, Grenoble, France. After completing his PhD studies from Madrid, Adolfo joined Max Planck Institute in Dresden as a postdoctoral researcher. Subsequently, he moved to UC Berkeley and Oxford University, as a Marie Curie Fellow. Adolfo made valuable contributions on various condensed matter systems, such as graphene and Weyl materials, showing their close connections with high-energy physics. Over the past few years Adolfo predicted various table-top experiments to measure chiral and gravitational anomalies.

Thursday February 25th at 2:25 via Zoom

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