Jyoti Katoch

Assistant Professor at Carnegie Mellon University
Pittsburgh, PA, US

Jyoti Katoch investigates the electronic, optical and spin dependent properties of novel quantum systems.

Biography

Jyoti Katoch investigates the electronic, optical and spin dependent properties of novel quantum systems such as two-dimensional layered materials and three-dimensional Dirac semimetals. She has expertise in controlling the properties of quantum materials using atomic scale modifications (adatoms, heterostructures, proximity effects, etc.) with an intent to tweak their properties on demand, as well as explore novel physical phenomena emerging from such modifications. Her research focuses on using two different experimental approaches for the fabrication of novel quantum systems: polymer-based mechanical assembly techniques to obtain atomically precise heterostructures of van der Waals materials and molecular beam epitaxy growth method for larger area thin films of quantum materials. Her group utilizes the state-of-the-art in-operando angle-resolved photoemission spectroscopy with sub 100 nm spatial resolution (nanoARPES) to obtain momentum resolved view of the electronic structure of fully functional devices based on quantum materials.

Areas of Expertise

Quantum Materials, Quantum Systems, Photolithography, Atomic Force Microscopy (AFM), Molecular Beam Epitaxy Growth Method, Polymer-based Mechanical Assembly Techniques

Education

University of Central Florida
Ph.D. Physics

Panjab University
B.S Physics, Mathematics and Chemistry

Accomplishments

DOE Early Career Research Award
2019