

Chez Pierre

Presents ...

Friday, May 26, 2023

12:00 pm - 1:00 pm

Duboc Room - 4-331



Special Chez Pierre Seminar

Qian Niu, University of Science and Technology, China

“Particle view in crystals”.

I will present a world view for electrons in crystals based the semiclassical dynamics and describe how the Berry curvatures modify the thermodynamic and transport properties. I will then extend this point of view to spacetime crystals by introducing the concept of an event wavepacket, the quantum version of the classical event point in spacetime. I will also describe spatial and temporal deformation, first in 3d crystals, using a geodynamic language, and obtain Hall viscosity, flexoelectric and flexomagnetic responses. When the results are extended to 4d spacetime crystals, the geodynamics becomes greatly simplified and unified, allowing a fresh look of table-top general relativity.