

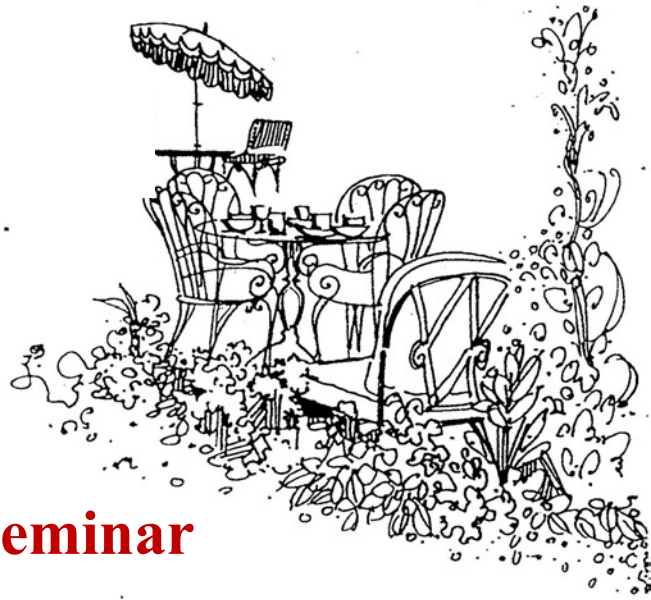
Chez Pierre

Presents ...

Monday, May 9, 2022

12:00pm Noon

Duboc Room 4-331



Chez Pierre Seminar

Ming Yi, Rice University

“Emergent phases in geometrically frustrated lattices”

Emergent phases often appear when the electronic kinetic energy is small compared to the Coulomb interactions. One approach to seek material systems as hosts of such emergent phases is to realize localization of electronic wavefunctions due to the geometric frustration inherent in the crystal structure, resulting in flat electronic bands. Recently, such efforts have found a wide range of exotic phases in the two-dimensional (2D) kagome lattice, including magnetic order, time-reversal symmetry breaking charge density wave (CDW), nematicity, and superconductivity. For the first part of the talk, I will present experimental evidence for the coexistence and intertwinement of magnetic order and charge density wave in the kagome FeGe system—the only kagome system found to exhibit both orders simultaneously. For the second part of the talk, I will present experimental realization of three-dimensional flat bands and Dirac cones found in a pyrochlore superconductor, where geometric frustration appears along all three crystal axes.