

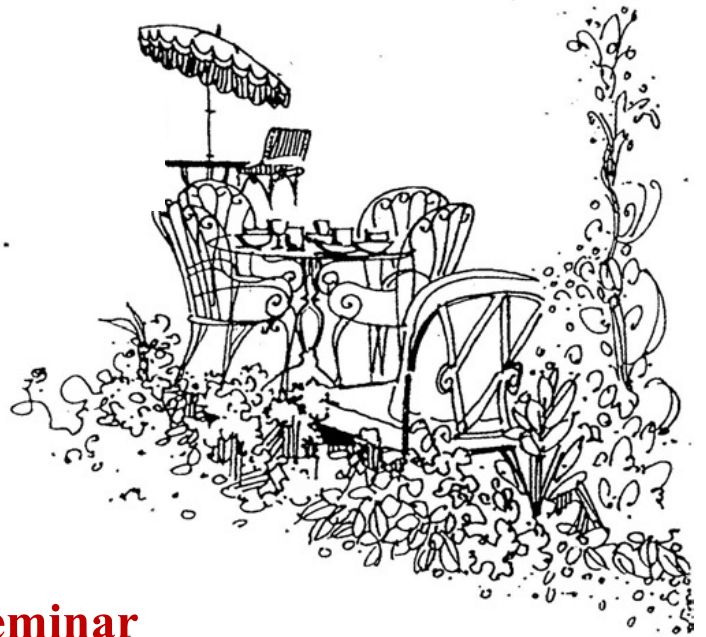
Chez Pierre

Presents ...

Monday, April 3, 2023

12:00 pm -1:00 pm

Duboc Room – 4-331



Chez Pierre Seminar

Ilija Zeljkovic, Boston College

“Imaging the cascade of symmetry-broken electronic states in kagome superconductors”.

The kagome lattice of transition metal atoms provides an exciting platform to study the interplay of electronic correlations and band topology. Recently discovered non-magnetic kagome metals AV_3Sb_5 ($A=K, Rb, Cs$) set off an avalanche of theoretical and experimental work as rare superconductors in the kagome structure. In this talk, I will present our experiments on AV_3Sb_5 where we uncovered a cascade of symmetry-broken electronic states emerging as a function of temperature. Using variable-temperature spectroscopic imaging scanning tunneling microscopy, we revealed a series of density waves, with different morphologies and dimensionality, all co-existing with superconductivity. Moreover, we observe distinct signatures of rotation symmetry breaking in the electronic structure, demonstrating the tendency of this family of kagome metals towards unidirectionality. Lastly, I will present our recent work revealing electronic nematicity in a new non-magnetic Ti-based kagome metal, $CsTi_3Bi_5$. Our experiments establish a complex landscape of electronic states that can co-exist on a kagome lattice, and provide intriguing parallels to high- T_c superconductors and twisted bilayer graphene.