

# *Chez Pierre*

Presents ...

**Monday, December 5, 2022**

**12:00pm Noon**

**Duboc Room – 4-331**



## **Chez Pierre Seminar**

**Fan Zhang, University of Texas at Dallas**

### **“Interacting Electrons in Elementary Bilayer Graphene”**

Bilayer graphene with a magic-angle artificial twist exemplifies a new paradigm of strongly interacting electrons, as witnessed in the past five years. In fact, the naturally occurring bilayer graphene is also fertile ground for interacting electron physics. In this talk, I will discuss its theory-oriented spontaneous chiral symmetry breaking and topological orbital magnetization at charge neutrality, its experiment-oriented ferromagnetism, superconductivity, and electron crystallization under low doping, and generalization of these two interacting regimes to thicker rhombohedral graphene systems.

While the community is focusing more on examining the superconductivity, I will show how the quarter metal phase renders a unique opportunity to explore the interplay between Coulomb interaction and flavor symmetry, e.g., the exotic  $SU(3)$  quantum dot physics.