

# *Chez Pierre*

Presents ...

**Monday, May 7, 2018**

**12:00pm Noon**

**MIT Room 4-331**

## **Chez Pierre Seminar**

**Ian R. Fisher – Stanford University**

**“How to tune electronic nematic order towards a quantum critical point”**

Electronic nematicity is observed in several families of strongly correlated materials, including high-temperature superconductors. A major open question is the extent to which nematic fluctuations contribute to the superconducting pairing interaction, motivating the desire to find ways to continuously tune the nematic phase transition in such materials. In this talk, I will describe new methods to do just this. In particular, I will emphasize that orthogonal antisymmetric strain is an important, and thus far largely neglected, tuning parameter for nematic order. The method, including a description of how to perform an appropriate decomposition in to different symmetry channels, is demonstrated for underdoped compositions of representative Fe-based superconductors. I will also discuss results from applying similar methods to materials that exhibit ferroquadrupole order, a specific realization of nematic order, which can be tuned to a quantum phase transition.

