



Thursday

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4:00 P.M.

Rm 123 NSH

## Fantastic emergent orders and where to find them

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Spontaneous emergence of orders is a recurring theme in physics that occurs at many different length scales. These orders emerge not because of the characteristics of the individual constituents, but because of the interactions amongst the participants that result in fantastically interesting collective behaviors. As an experimental condensed matter physicist, I study interactions occurring at the atomic scale of material systems, where quantum effects lead to orderings of the lattice, charge, spin and orbital degrees of freedom, often macroscopically manifested in material properties for real-world applications. In this talk, I will use the material system of the iron-based high temperature superconductors to illustrate the range of exotic electronic orders that have been discovered in recent years. In doing so, we come to appreciate the spectacularly bustling landscape of electronic phases out of which the enigmatic phenomenon of high temperature superconductivity arises.