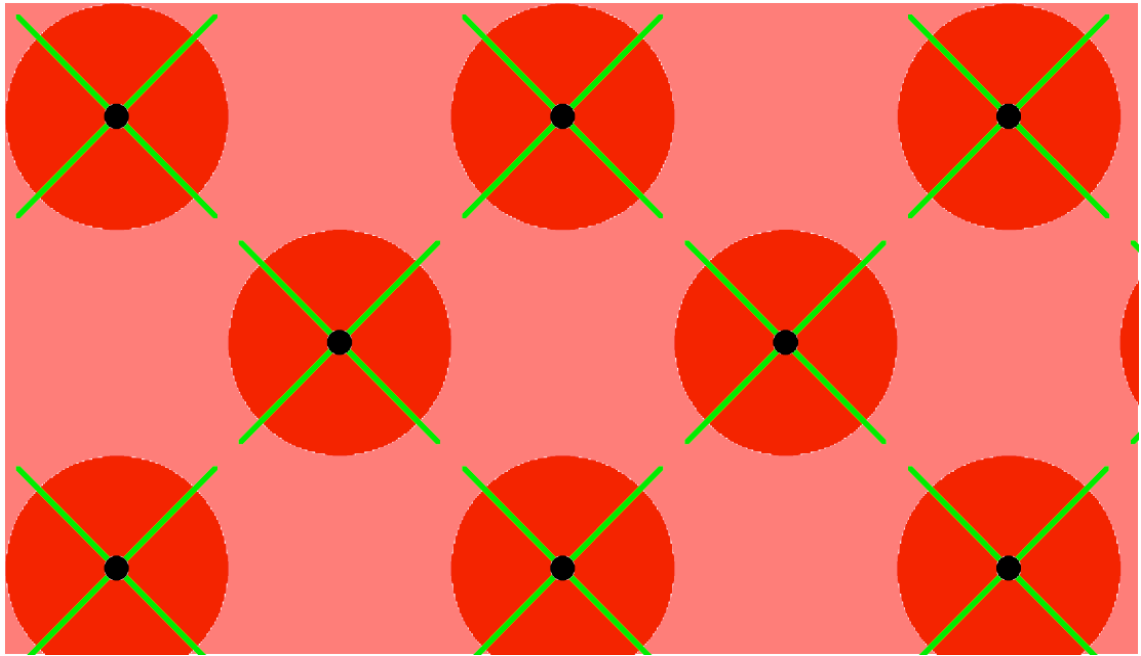




# COLLOQUIUM



Dr. Manfred Bucher  
CSU Fresno

## Universal model of superconductivity

### Abstract

The semiclassical concept of the Coulomb oscillator—quantized electron-swings through the nucleus—provides an explanation for superconductivity in all situations. Three rules govern (1) the creation of superconductivity, (2) its destruction, and (3) the suppression of its destruction. The creation rule accounts for the systematic patterns of superconductivity (or its absence) across the periodic table. The suppression rule explains the range of the critical temperature  $T_c$  of known superconductors, and suggests how to raise  $T_c$  of future superconducting materials. The model will be exemplified for superconducting elements, thin films, binary compounds, alkali-doped fullerenes  $A_3:C_{60}$ , and perovskite cuprates like  $YBa_2Cu_3O_{7-\delta}$ . The relation of the present model to the BCS theory will be discussed.

3-4 p.m., Friday, April 4<sup>th</sup>  
McLane Hall 162  
Open To All