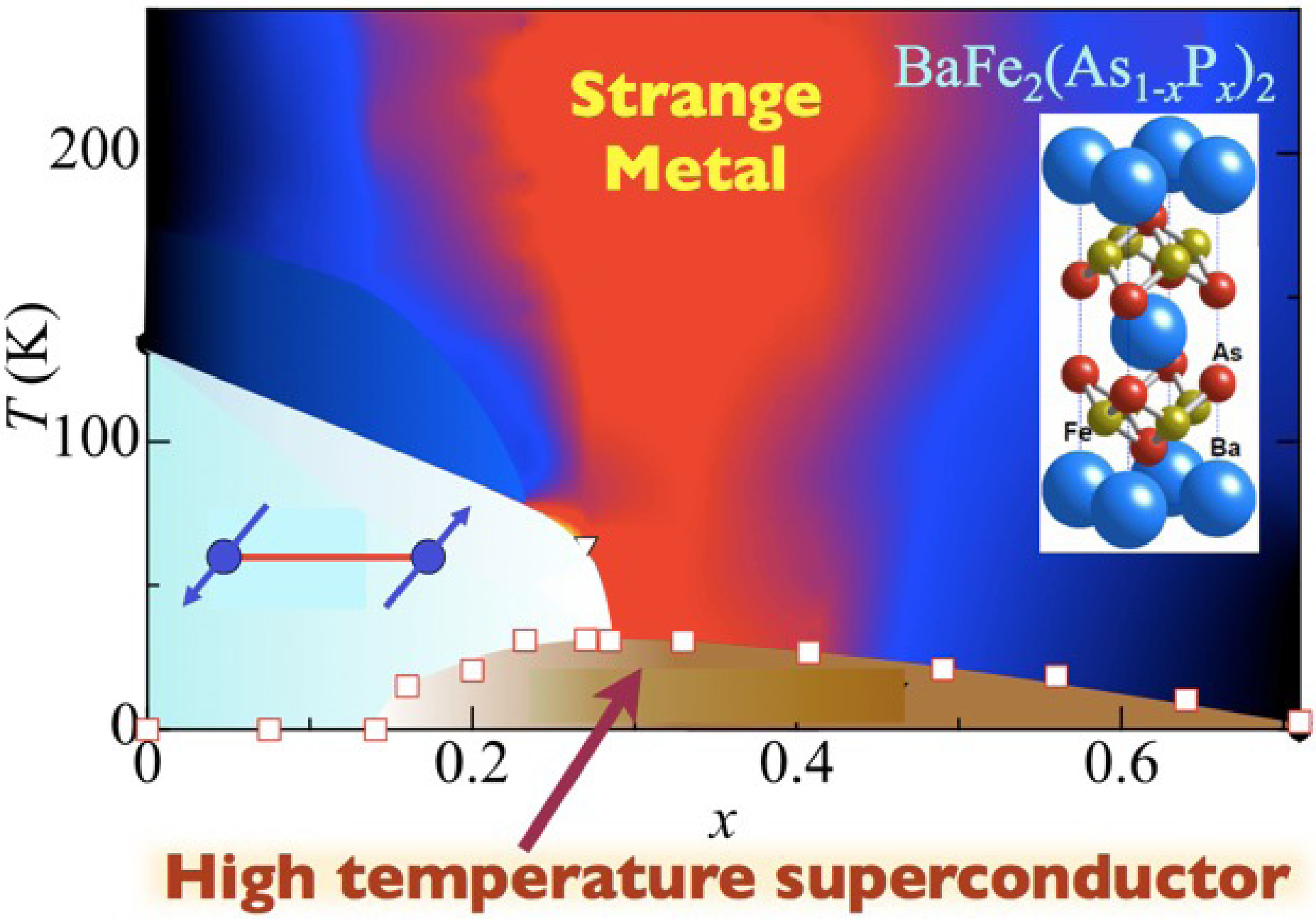
Boston University Physics Colloquium



Quantum entanglement and the phases of matter

In many modern materials, electrons quantum-entangle with each other across long distances, and produce new phases of matter, such as high temperature superconductors. We face the challenge of describing the entanglement of 10^{23} electrons, which is being being met by many ideas. A promising recent approach uses string theory. This theory was originally constructed as a unification of the quantum field theory of elementary particles with Einstein's theory of gravitation. Unexpectedly, the "dualities" of string theory have given us a new perspective on long-range entanglement in quantum models which describe electrons in modern materials in easily accessible laboratory environments.

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Harvard University

March 6, 2012 (Tuesday) at 3:30pm (Refreshments at 3:15pm)

SCI 109, Metcalf Science Center, Boston University

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