Superconductivity, quasi-particle dynamics and strong-coupling physics\textsuperscript{1}
JOERG SCHMALIAN, Ames Laboratory, Iowa State University

I discuss the problem of superconductivity from the perspective of pairing mediated by a boson and compare with the situation of “no-glue” superconductivity in a strongly correlated material. This is done for Tl-doped PbTe, where recent experiments support superconductivity due to quantum valence (charge Kondo) fluctuations, and for the doped Mott insulator SrCu$_2$(BO$_3$)$_2$, where d-wave superconductivity emerges due to a reorganization of a valence bond crystal state. I discuss the implications of these results for high temperature superconductivity in the cuprates.

\textsuperscript{1}Ames Laboratory, operated for the U.S. DOE by Iowa State University under Contract No. DE-AC02-07CH11358