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Abstract for an Invited Paper
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Superconductivity, quasi-particle dynamics and strong-coupling physics¹

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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 $\text{SrCu}_2(\text{BO}_3)_2$, 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.

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