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Similarities in the Tunneling Spectral Dip in FeAs-based and Cuprate Superconductors JOHN ZASADZINSKI, LIAM COFFEY, OMID AHMADI, Physics Department, Illinois Institute of Technology, KEN GRAY, DAVID HINKS, Materials Science Division, Argonne National Lab, IIT/ANL COLLABORATION — Recent STS measurements on LiFeAs revealed an above-gap spectral dip feature in the superconducting state that diminished in size with increasing T and disappeared at Tc. We argue that such a feature mimics conventional strong coupling effects and bears a striking resemblance to dip features found in cuprates such as Bi2212. In all cases, the estimated boson energy, Ω, lies within the superconducting gap, 2Δ, suggesting a spin exciton, and is $\sim 5k_BTc$, consistent with the resonance mode found in neutron scattering. The doping dependence of the dip in Bi2212 break junctions is reviewed and it is shown that fits of the tunneling data can be achieved using an Eliashberg formalism. The electron-boson spectral function is dominated by a sharp peak at Ω. These results indicate that the two classes of superconductors have a similar pairing interaction of electrons coupled to a spin fluctuation spectrum renormalized by superconductivity.

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