Inelastic neutron scattering study on Co-doped LiFeAs YU LI, Rice University, DAVID TAM, Rice Univ, MENG WANG, UC Berkeley, RICE UNIVERSITY TEAM — We performed inelastic neutron scattering on Co-doped LiFeAs material. In 12% Co doped LiFeAs, where $T_c$ is dramatically suppressed, the low energy spin excitation is commensurate at $(\pi,0)$ point which is different from pure LiFeAs case. Based on the fact that in this material the perfect nesting exists between outer hole pocket and electron pocket and is dominated by $d_{xy}$ orbital, we argue that the superconductivity is actually associated with electron scattering from $d_{xz}/d_{yz}$ orbital and the $d_{xy}$ orbital barely contributes to the superconducting pairing.

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