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Superconductivity beyond the dimer model in 2D organic charge transfer salts[1] MICHAELA ALTMEYER, DANIEL GUTERDING, HARALD O. JESCHKE, ROSER VALENTI, Goethe-Universitaet Frankfurt — We present a theoretical investigation of BEDT-TTF charge transfer salts containing κ-type layers. Using ab-initio density functional theory we construct realistic models with unprecedented accuracy for a broad variety of materials. We analyze the pairing symmetry and strength within random phase approximation spin fluctuation theory and interpret our findings microscopically in a tight-binding analysis. In particular we show that the minimal model for this class of materials needs to describe all BEDT-TTF molecules independently and give an example where the customary dimer model breaks down.

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