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Small Bipolarons in the anisotropic 2-dimensional Holstein-Hubbard model. JUN ZHOU, JEROME DORIGNAC, DAVID CAMPBELL, Boston University — We will investigate the bipolaron states in the anisotropic two-dimensional Holstein-Hubbard model. The interplay between attractive electron-phonon coupling g and the repulsive electron-electron interaction v will generate many different ground states. The anisotropic electron hopping in two dimensions also plays a role in affecting the bipolaron state. The bipolaron could be located on a single site or be two polarons separated by several sites or a quadrisinglet state which is the superposition of 4 electronic singlets with a common central site.

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