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Bipolaron phase diagram of the 1D adiabatic Holstein-Hubbard model in the strong coupling limit JEROME DORIGNAC, JUN ZHOU, DAVID CAMPBELL, Boston University — We derive the phase diagram for bipolarons in the one-dimensional adiabatic Holstein-Hubbard model in the strong coupling (small hopping) limit. We show the existence of a threshold value for the Coulomb interaction beyond which the ground state of the system consists of two free polarons (infinitely far apart from each other). This result, obtained by means of an exact perturbative expansion, cannot be reproduced by the usual exponential ansatz for the wave function.

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