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Excitonic condensation with different pairing symmetries in double quantum wells CHRISTOPHER JAMELL, Indiana University-Purdue University Indianapolis — Double quantum wells with one containing electrons and the other containing holes as carriers are a promising candidate for condensation of dipolar excitons with lifetime much larger than lifetime of excitons in bulk semiconductors. When the inter-well distance is comparable to the interparticle distance within a single well, $d \leq r_s a_B$, inter-well coherence is expected to lead to an excitonic condensation. We explore the ground state of a balanced system as a function of inter-well distance d and the carrier density n_{2D} . We present Hartree-Fock mean-field results for the quasiparticle and order parameter dispersion with different pairing symmetries. We obtain the quasiparticle density of states in each case. These results lay the ground work for mean-field study of excitonic condensate states with spontaneously broken translational symmetry.

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