

Abstract Submitted
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Born-Oppenheimer study of two-component few-particle systems under one-dimensional confinement NIRAV MEHTA, Trinity Univ — The energy spectrum, atom-dimer scattering length, and atom-trimer scattering length for systems of three and four ultracold atoms with δ -function interactions in one dimension are presented as a function of the relative mass ratio of the interacting atoms. The Born-Oppenheimer approach is used to treat three-body (“HHL”) systems of one light and two heavy atoms, as well as four-body (“HHHL”) systems of one light and three heavy atoms. Zero-range interactions of arbitrary strength are assumed between different atoms, but the heavy atoms are assumed to be noninteracting among themselves. Both fermionic and bosonic heavy atoms are considered.

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