

Abstract Submitted  
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**Two bosonic dipoles under elongated confinement**<sup>1</sup> KRITTIKA KANJILAL, Department of Physics and Astronomy, Washington State University, Pullman, WA 99164-2814, DOERTE BLUME, Department of Physics and Astronomy, Washington State University, Pullman, WA 99164-2814 AND JILA, University of Colorado, Boulder, CO 80309-0440 — The behaviors of two particles under harmonic confinement strongly depend on the aspect ratio  $\eta$ , which is defined as the ratio between the trapping frequency along the  $\rho$  and the  $z$  directions. It has been shown that the properties of particles interacting through spherically symmetric potentials are, in the extreme limits of very large and very small  $\eta$ , well described by effective one- and two-dimensional Hamiltonian. This work considers two particles with anisotropic interactions confined in an elongated harmonic trap. Assuming that the dipole moments are aligned along the  $z$ -axis, we obtain the eigen spectrum of this system analytically and analyze how it changes as a function of  $\eta$ . To validate our analytical approach, we compare our results with the eigen spectrum obtained numerically for a short-range shape-dependent potential.

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