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Symmetries of Four Harmonically-Trapped Particles in One Dimension BRIAN WEINSTEIN, NATHAN HARSHMAN, JESSICA USCINSKI, American University — We present a method for solving trapped, interacting, four-body systems in a one-dimensional harmonic trap. By expressing the particle coordinates in Jacobi spherical coordinates, we discover the underlying O_h symmetry, i.e. tetrahedral symmetry with parity inversion. This symmetry provides an alternate method for describing particle configurations and clustering, and it simplifies numerical calculations of the energy eigenstates of the system for tunable interactions.

Brian Weinstein
American University

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