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**Energetics and structural properties of bosonic three-dimensional clusters near threshold**[1] D. BLUME, G. J. HANNA — We treat three-dimensional bosonic clusters with up to N=40 atoms, interacting additively through two-body van der Waals potentials, in the near-threshold regime using the diffusion quantum Monte Carlo method. Our study focuses on super-Borromean systems with N atoms for which all subsystems are unbound. We determine the energetics and structural properties such as the expectation value of the interparticle distance as a function of the coupling strength. It has been shown that the coupling strength $g_N^*$, for which the N-body system becomes unbound, is bounded by the coupling constant $g_{N-1}^*$, for which the next smaller system with N-1 atoms becomes unbound. By fitting our numerically determined ground state energies to a simple functional form with three fitting parameters, we determine the relationship between $g_N^*$ and $g_{N-1}^*$.

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