

Abstract Submitted
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Strongly dipolar Bose gases KRZYSZTOF JACHYMSKI, Univ Stuttgart, RAFAL OLDZIEJEWSKI, Center for Theoretical Physics, Polish Academy of Sciences — Strongly dipolar Bose gases can form liquid droplets stabilized by quantum fluctuations. In a theoretical description of this phenomenon, the low-energy scattering amplitude is utilized as an effective potential. We show that for magnetic atoms corrections with respect to the Born approximation should be included in theoretical description. We derive a modified pseudopotential using a realistic interaction model. We then discuss the construction of the effective low-energy Hamiltonian for trapped systems with long-range interactions. Our results are relevant to recent experiments with erbium and dysprosium atoms.

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