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Many-body bound states in waveguide bends[1] R CABRERA-TRUJILLO, B.D. ESRY, M.W.J. BROMLEY, Department of Physics, Kansas State University, Manhattan, KS 66506 — It is well known that a particle can be bound in the bend of a waveguide. We will present the results of calculations exploring whether many particles can be similarly bound when the interparticle interactions are included in a mean field approximation. In particular, we calculate the maximum number of atoms that can be bound as a function of the scattering length for various bend parameters. Possible consequences for matter wave propagation through the bend will be discussed.

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