Abstract Submitted
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Stability of a Bose-Einstein condensate in a driven optical lattice: Crossover between weak and tight transverse confinement[1] SAYAN CHOUDHURY, ERICH MUELLER, Cornell Univ — We explore the effect of transverse confinement on the stability of a Bose-Einstein condensate (BEC) loaded in a shaken one-dimensional or two-dimensional square lattice. We calculate the decay rate from two-particle collisions. We predict that if the transverse confinement exceeds a critical value, then, for appropriate shaking frequencies, the condensate is stable against scattering into transverse directions. We explore the confinement dependence of the loss rate, explaining the rich structure in terms of resonances.

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