
KOLOKVIJ FIZIČKOG ODSJEKA

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Preparing atom-number states by trap reduction

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While difficult to prepare experimentally, atomic (Fock) states with a well defined number of particles are highly desirable in atom interferometry. We shall describe the production of such states from a large atomic cloud of strongly-interacting bosons/polarized fermions by suddenly reducing the potential trap. Two different methods are considered: making the trap shallower and trap squeezing. When used independently, the efficiency of both procedures is limited, while their combination provides a robust and efficient strategy to prepare atomic Fock states.

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