

Abstract Submitted
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Control of Raman transitions between magnetic sublevels using circularly polarized light¹ SVETLANA MALINOVSKAYA, Stevens Institute of Technology — We study magnetic properties of ultracold alkali atoms trapped in a magneto-optical trap or in the optical lattice. The basis set is made of multiple magnetic sublevels existing within the hyperfine states of ^{87}Rb . To perform quantum operations on the magnetic sublevels, we make use of crafted optical pulses and pulse trains with various polarizations. We will discuss a possibility to control selective excitation from and to specific magnetic sublevels by circularly polarized light and its combination with the constant magnetic field.

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