

Abstract Submitted
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Quantum magnetism of alkali Rydberg atoms SVETLANA MALINOVSKAYA, GENGYUAN LIU, Stevens Institute of Technology — We discuss a method to control dynamics in many-body spin states of ^{87}Rb Rydberg atoms. The method permits excitation of cold gases and form ordered structures of alkali atoms. It makes use of a two-photon excitation scheme with circularly polarized and linearly chirped pulses. The method aims for controlled quantum state preparation in large ensembles. It is actual for experiments studding the spin hopping dynamics and realization of quantum random walks.

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