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Optimizing the Efficiency of Spin Singlet Production in Lattice-Confined Spinor Condensates JARED AUSTIN, ZIHE CHEN, ZACHARY SHAW, LICHAO ZHAO, YINGMEI LIU, Oklahoma State University-Stillwater — Many-body spin singlet states have been widely suggested as ideal candidates in investigating quantum metrology and quantum memory. In this poster, several experimental sequences for producing spin singlets in an antiferromagnetic spinor condensate confined by a cubic optical lattice are presented. We demonstrate how to optimize spin singlet production efficiency by properly varying the initial atom number distributions, which are precisely measured from non-equilibrium spin dynamics. Two experimental methods for detecting spin singlet states are also discussed.

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