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Generation of complex spin textures in a Raman-coupled spinor BEC K.C. WRIGHT, University of Rochester, Department of Physics, L.S. LESLIE, University of Rochester, Institute of Optics, N.P. BIGELOW, University of Rochester, Department of Physics — We demonstrate the controlled creation of complex spin and vortex states of a spinor condensate, using spatially varying Raman-detuned laser pulses to control the internal and external angular momentum of the condensate. By applying several combinations of optical modes and pulse patterns, we illustrate the versatility of this technique for creating a range of physically interesting multicomponent coreless vortex states. We also show that it is possible to generate coherent superpositions of such vortex states, and use the resulting interference patterns to confirm the presence of quantized vortices.

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