

Abstract Submitted  
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**Spin Orbit Coupling in a Spin-1 System**<sup>1</sup> RYAN PRICE, DANIEL CAMPBELL, ANDIKA PUTRA, ANA VALDES CURIEL, IAN SPIELMAN, Univ of Maryland-College Park — Using a three frequency Raman coupling scheme, we create a system that provides independent control of the bare energy states of a spin orbit coupled  $^{87}\text{Rb}$  Bose-Einstein Condensate in the  $F = 1$  hyperfine state. The independent energy level control given by the three frequency coupling scheme leads to tunable effective quadratic Zeeman shift which is used to create a spin-1 spin orbit coupled system. In this work we study the energy dispersion under various spin orbit coupling and effective quadratic Zeeman shift magnitudes. In addition, we explore the modified many-body interactions in the spin orbit coupled system.

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