

Abstract Submitted  
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**Nonlinear optics in atomic ytterbium**<sup>1</sup> TIAN LI, JONATHAN D. WEINSTEIN, University of Nevada — We have performed degenerate four-wave mixing experiments with cryogenically-cooled atomic ytterbium. We use buffer-gas cooling to prepare high optical density samples at a temperature of 5 K, cold enough to resolve the different isotopes and hyperfine transitions. We observe four-wave mixing. With cross-polarized pump and probe beams, we observe a conjugate beam only when the laser is closely detuned from the  $^1S_0(F = 1/2) \rightarrow ^1P_1(F = 1/2)$  transition of the  $^{171}\text{Yb}$  ( $I = 1/2$ ) isotope. Progress towards the generation of squeezed light will be discussed.

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