

Abstract Submitted
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Resonances and super-radiance in the strong picosecond pumping of dense Rubidium CHRISTOPHER O'BRIEN, ANDREW TRAVERSO, LUQI YUAN, VLADISLAV YAKOVLEV, IQSE, Texas A&M University, MARLAN SCULLY, Texas A&M University, Princeton, and Baylor University — A recent series of experiments at Texas A&M University has observed sideband emission at the effective Rabi frequency as well as super-radiant emission in both the forward and backward direction from a dense Rubidium cell pumped by a very strong picosecond pulse. The forward and backward emission spectrum was collected as the pump pulse was scanned over resonance of the D2 and D1 lines. There are a number of interesting observations that can be made through analysis of these spectra. The most intriguing of which, is the possible observance of a resonant version of the previously proposed QASER¹ mechanism. I will briefly discuss the experiment then focus on how to theoretically understand the results.

¹A. A. Svidzinsky, L. Yuan, M. O. Scully, PRX 3, 041001 (2013).

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