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*****Withdrawn*** Hyperfine splitting in atomic hydrogen and two photon processes in CARS and cosmic blackbody radiation (G)**

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Single photon absorption and decay is the process where an atom emits or absorbs a single photon whose energy is equal to the energy difference between atomic energy levels. In two photon processes, an atom emits or absorbs two photons whose energies sum to the energy difference between atomic energy levels. The study of two photon processes has multiple applications in several fields of laser physics and astrophysics. Specifically we will be reporting results on fundamental two photon processes involving the hyperfine splitting of the ground state hydrogen. We will apply our calculations to Raman scattering processes, including Coherent Anti-Stokes Raman spectroscopy (CARS), and to two-photon absorption from the cosmic blackbody radiation.

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