Abstract

The purpose of this thesis is to use a circularly polarized laser field to decrease the emission rate of hydrogen atoms in the 2p excited state, thus extending its lifetime. Pump-probe experiments will benefit from this study because the short excited state lifetimes make the experiments challenging. The excited state electron oscillations are controlled by an appropriate field and frequency of laser. The laser's field and frequency are both essential in decreasing the emission rate and extending the excited state's lifetime.