

Abstract Submitted  
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**Lifetime measurements of the rubidium 5D states**<sup>1</sup> DONG SHENG, ADRIAN PEREZ GALVAN, LUIS OROZCO, Joint Quantum Institute, Univ. Maryland and NIST — We present lifetime measurements of the 5D3/2 and 5D5/2 excited states of rubidium using correlated single photon detection. We perform the experiment in a small sample of magneto-optically trapped Rb87 atoms and prepare the 5D states using a two-photon excitation with the 5P3/2 state as the intermediate state. We directly measure the 762 nm photon from the decay of the 5D3/2 state to the 5P1/2 state to obtain the lifetime of the 5D3/2 state. We detect the 420nm photon from the cascade decay of the 5D5/2 state to the 5S1/2 state through the 6P3/2 state to extract the lifetime of the 5D5/2 state. We have reached statistical errors of less than 2 percent for the lifetimes of those two 5D states and we are in the process of studying systematic errors, including the density of the atomic sample, the intensity of the excitation beams, the magnetic field environment, and the fitting algorithm.

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