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Studies of the $5s^{21}S_0 - 5s5p^3P_1$ Transition in Atomic Strontium

YENNY NATALI MARTINEZ, Rice University, YING-CHENG CHEN, Institute of Atomic and Molecular Sciences, Academia Sinica, PASCAL MICKELSON, SARAH NAGEL, THOMAS C. KILLIAN, Rice University — The importance of the $5s^{21}S_0 - 5s5p^3P_1$ intercombination line of strontium (Sr) as a possible candidate for optical frequency standards requires precise knowledge of the properties of this transition. Using the established electron-shelving technique on a cloud of laser cooled and trapped Sr atoms, we measured the lifetime of the 3P_1 state. Studies of the linewidth of the transition allowed us to determine the linewidth of the pumping laser used in the experiment, which is important for future applications in laser cooling.

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