

Abstract Submitted
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Two-Photon Spectroscopy in Rb for an Optical Frequency Standard KYLE MARTIN, Applied Technology Associates, GRETCHEN PHELPS, NATHAN LEMKE, DANIEL BLAKLEY, Space Dynamics Laboratory, CHRISTOPHER ERICKSON, JOHN BURKE, Air Force Research Laboratory, APPLIED TECHNOLOGY ASSOCIATES TEAM, SPACE DYNAMICS LABORATORY TEAM, AIR FORCE RESEARCH LABORATORY TEAM — The Air Force Research Laboratory is pursuing optical atomic clocks for navigation and timing applications. Optical clocks are of particular interest owing to their very high oscillation frequencies. We present an optical rubidium atomic frequency standard (O-RAFS), based upon a two-photon transition at 778 nm, that utilizes readily available commercial off-the-shelf components. Compared to existing GPS clocks, O-RAFS offers reduced short-term instability ($7 \times 10^{-13}/\sqrt{\tau}$), improved manufacturability, and competitive size, weight, and power, making it an attractive candidate for future space operation.

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