

Abstract Submitted
for the DAMOP17 Meeting of
The American Physical Society

A clock transition in a solid-state system G. J. A. EDGE, S. POTNIS, A. C. VUTHA, University of Toronto — With the impending redefinition of the SI second based on optical frequency standards, new secondary frequency standards are needed in order to form clock ensembles. Ideally such secondary standards will offer enhanced robustness, portability and high signal-to-noise ratios (SNR), to enable rapid and precise comparisons to be made against primary standards. A clock based on a narrow optical transition, in atoms that are doped into a solid-state host, offers the experimental simplicity and large SNR to satisfy these requirements. The intra-configuration ${}^7F_0 \rightarrow {}^5D_0$ transition, in Sm^{2+} ions doped into a host crystal, is an attractive candidate for such secondary standards due to its low susceptibility to perturbations from the crystal environment. We present results from the interrogation of this clock transition with a narrow linewidth laser.

A. C. Vutha
University of Toronto

Date submitted: 29 Jan 2017

Electronic form version 1.4