

Abstract Submitted
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Progress trapping single indium ions for possible frequency reference WILLIAM TRIMBLE, JEFF SHERMAN, WARREN NAGOURNEY, University of Washington — The $^1S_0 \rightarrow ^3P_0$ transition in the In^+ ion at 237 nm has a natural linewidth of 0.8 Hz and is a promising candidate for an optical frequency reference. Since this “clock” transition is $J=0 \rightarrow J=0$, it lacks shifts from the electric quadrupole interaction, a leading systematic in some ions under investigation. This transition coincides with the fourth harmonic of the 946 nm line available from already narrow-linewidth Nd:YAG lasers. We report recent developments in spectroscopy of single In^+ ions using a Paul-Staubel trap and a new frequency-quadrupled diode laser to excite the stronger $^1S_0 \rightarrow ^3P_1$ transition at 230 nm. We also propose comparisons between the indium ion frequency reference and other frequency references at the University of Washington.

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