

Abstract Submitted
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Spectroscopy of $^1S_0 \leftrightarrow ^3P_0$ transition in In^+ WILLIAM TRIMBLE, WARREN NAGOURNEY, University of Washington — We report spectroscopy of the $^1S_0 \leftrightarrow ^3P_0$ transition at 237 nm in single indium ions confined in a Paul- Straubel trap. The indium ion is among candidates for optical frequency references because of the high quality factor ($Q \sim 1.5 \cdot 10^{15}$) and the small quadrupole and blackbody shifts of its ground-state to 3P_0 transition. Using a frequency- quadrupled diode laser to cool the ion on the stronger $^1S_0 \leftrightarrow ^3P_1$ transition, we report sub-kHz linewidths in exciting the narrow 3P_0 transition using a frequency-quadrupled Nd:YAG nonplanar ring oscillator (NPRO) at 946 nm stabilized to a vertically-mounted high-finesse ULE cavity.

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