

Abstract Submitted
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Optimization of a Prototype Atomic Clock Based on Coherent Population Trapping¹ EUGENIY MIKHAILOV, NATHAN BELCHER, IRINA NOVIKOVA, The College of William & Mary — We developed and constructed a VCSEL-based laser system to study various configurations of coherent population trapping resonances (CPT) in hot Rb vapor, relevant for miniature CPT-based atomic clocks. We also locked an external crystal oscillator to CPT resonance; best observed fractional stability is $6 \cdot 10^{-12}$ at 400s. In addition to its research value, our apparatus can be easily adopted as an advanced undergraduate experiment, since it uses primarily off-the-shelf electronic and optical components.

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