

Abstract Submitted
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Development of Al⁺ optical clocks¹ JWO-SY CHEN, KANG-KUEN NI, CHIN-WEN CHOU, DAVID J. WINELAND, TILL ROSEN BAND, National Institute of Standards and Technology — Low sensitivity to electromagnetic fields and a narrow natural line width have enabled the $^1S_0 - ^3P_0$ transition in Al⁺ to achieve 8.6×10^{-18} accuracy. This allows for precise gravitational red-shift measurements with possible applications in geodesy, hydrology, and other fundamental tests of physics. However, the current laboratory system is not yet usable for these applications, due to the complexity of operation. We report recent progress towards the goals of higher accuracy and simplified non-laboratory operation of Al⁺ clocks.

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