

Abstract Submitted  
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**Improved stability of a  $^{87}\text{Sr}$  three-dimensional optical lattice clock** LINGFENG YAN, WILLIAM MILNER, ROSS HUTSON, LINDSAY SONDERHOUSE, CHRISTIAN SANNER, AKIHISA GOBAN, JUN YE, JILA — Optical clocks with high accuracy and stability play an essential role in a wide range of technological and scientific applications. A  $^{87}\text{Sr}$  three-dimensional optical lattice clock has recently demonstrated record-breaking stability due to its large atom number and long coherence time. This performance can be further improved by decreasing the dead time and realizing a longer coherence time. Through improved loading of the optical trap, we have reduced the duration of our evaporative cooling from 10 s to 3 s while maintaining  $T/T_F=0.05$ . We also describe a new optical lattice clock geometry for improving the atomic coherence time that has previously been limited by Raman scattering induced by optical lattice beams.

Lingfeng Yan  
JILA

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