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Abstract for an Invited Paper
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Advancing the state-of-the-art of the optical atomic clock[1]

JUN YE, JILA, NIST and University of Colorado

The continued advance in laser phase coherence has permitted an improvement of the stability of optical lattice clocks by a factor of 10. This measurement precision has facilitated characterization of systematic effects, allowing us to improve the lattice clock accuracy by a factor of 20. The accuracy and stability of the JILA Sr clock now reach the 10^{-18} level. Owing to these advances, the lattice clock has also emerged as an effective laboratory to study many-body spin correlations.

[1]NIST, NSF, DARPA-QuASAR