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Lattice interferometry in an optical cavity MATTHEW JAFFE, VICTORIA XU, SOFUS KRISTENSEN, HOLGER MUELLER, University of California, Berkeley — Optical cavities have attracted interest for use in atom interferometers, in hopes that the pristine cavity mode wavefronts would enable reliable matter wave manipulations. In particular, a spatially-separated atomic wavefunction could be held in an optical lattice for long durations, boosting interferometer sensitivity. In this talk, I will present our realization of a trapped atom interferometer inside an optical cavity. The cavity's high quality wavefronts allow interferometer durations an order of magnitude longer than any previously demonstrated. I will present experimental results, and discuss exciting aspects of our interferometer geometry.

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