

Abstract Submitted
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Infrasound **gravitational**
wave detection with atoms¹ SVEN ABEND, CHRISTIAN SCHUBERT, DEN-
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RASEL, Institut for Quantum Optics, Leibniz University Hannover — Atom inter-
ferometry offers an interesting perspective for the detection of gravitational waves in
a frequency band between eLISA and Advanced LIGO, resulting in an active field of
research. Ground based setups with vertical or horizontal baselines were considered,
satellite missions investigated, and interferometer topologies developed. We inves-
tigate a novel geometry for a ground-based device combining several advantages
as a horizontal baseline, enabling long baselines, a single axis laser link between
the atom interferometers acting as phasometers, and suppressing errors sources oth-
erwise implying very strict requirements onto the atomic source. It is based on
recent developments in symmetric beam splitters with scalable momentum trans-
fer, relaunching techniques for suspending the atoms against gravity, and delta-kick
collimation techniques to generate very slowly expanding atomic ensembles.

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