

## MAGIS-100 at Fermilab

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The Matter-wave Atomic Gradiometer Interferometric Sensor (MAGIS) collaboration seeks to connect two quantum sensors across a long baseline. The phase in each device is compared across this baseline, enabling broad applications for basic science. The science is enabled by the ongoing advances in atomic clocks and atom interferometry.

The experiment is sensitive to the distortion of the space-time between the sensors, and can be used to answer basic science questions in quantum mechanics, dark sector physics, and 'mid-band' gravitational wave detection. It will be able to detect well-motivated ultra-light dark matter candidates several orders of magnitude beyond current bounds, via time-varying signals. It can also probe hitherto unconstrained parts of parameter space in the search for new fundamental forces.

This scheme is physically implemented in the configuration of MAGIS-100 by taking two atom interferometers and separating them across the baseline of the vertical 100-meter-deep NuMi access shaft at Fermilab.

The Status and plans for the experiment will be presented.

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