Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Status of Windchime: Gravitational Direct Detection of Planck Mass Dark Matter Using Quantum-Enhanced Sensors JUEHANG QIN, Purdue University, WINDCHIME COLLABORATION — Attaining sensitivity to the gravitational coupling of dark matter is a holy grail in direct detection experiments. It has been shown that for a region of parameter space around the Planck mass, it is theoretically possible to detect dark matter that solely interacts via gravitation. This is also a well-motivated region of parameter space as new physics is expected around the Planck mass. The Windchime experiment is aimed at the direct detection of dark matter in this parameter space via gravitational couplings alone, using a large array of accelerometers with quantum-enhanced readout. In this talk I will detail the experimental status of a prototype setup, as well as analysis and simulation frameworks.

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Date submitted: 07 Jan 2021 Electronic form version 1.4