



Contribution ID: 350

Type: **Parallel talk**

The Windchime Project: Towards the Gravitational Detection of Dark Matter

Wednesday 30 August 2023 17:00 (15 minutes)

The Windchime Project aims to utilize advancements in quantum sensing technologies to search for dark matter in the lab, based solely on its feeble gravitational interaction. Recent work has suggested the possibility to search for dark matter with mass near the Planck scale (around 10^{19} GeV or 20 micrograms), a parameter space theoretically well-motivated and experimentally accessible. This presentation will introduce the concept of using an array of mechanical impulse sensors with a quantum-enhanced readout for dark matter detection, and its projected sensitivities. We will present the current status of the project, along with some preliminary results from recent computational efforts and a range of prototype setups in the collaboration.

Submitted on behalf of a Collaboration?

Yes

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Session Classification: Dark matter and its detection

Track Classification: Dark matter and its detection