Contribution ID: **111** Type: **Fermilab open session**

Support for an National Axion User Facility

Wednesday, 22 March 2023 16:55 (5 minutes)

Dark matter makes up 85% of the matter in the universe and 27% of its energy density, but we don't know what comprises dark matter. Wavelike dark matter, including the QCD axion, are well-motivated dark matter candidates that have been receiving more attention in recent years. However, if the axion exists, its mass is unknown, requiring experiments to search through a broad range of parameter space. Yet only a small fraction of the viable parameter space has been ruled out by experiments. The community yearns for enabling technologies that will make the rest of the axion parameter space more accessible. An axion user facility would catalyze the R&D required to develop these enabling technologies and test different axion detection methods. Axion searches often require large magnets, milliKelvin cryogenics, and sophisticated quantum sensors. An axion user facility would allow the community to share engineering and infrastructure resources, leading to a larger and more efficient axion discovery program.

Please select if remarks will be in person or on zoom

In person

Do you describe your self as early career?

yes

Please add details of experiment/project that this abstract corresponds to?

I am a part of SQMS/Fermilab, but I am advocating for all wavelike dark matter experiments including ADMX, DM Radio, and HAYSTAC.

Primary author: CERVANTES, Raphael (Fermilab)

Presenter: CERVANTES, Raphael (Fermilab)

Session Classification: Open Session for remarks