

Condensed Matter Physics Seminar Series

Searching for Dark Matter Using Hybrid Quantum Circuits

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Axions are hypothetical particles that do not belong to the standard model and are thought of as being one of the promising candidates for dark matter. In 1983, Pierre Sikivie developed an idea that would allow us to detect the conversion of an axion into a microwave cavity photon via the Inverse Primakoff effect. By utilizing a tripartite system comprised of a magnetic field resilient nonlinear superconducting device, a microwave cavity, and a magnetic crystal, we aim to detect an axion with an architecture akin to Pierre Sikivie's, enhanced with a phase-resolved measurement technique. In this talk, I'll present both the concept and the experimental results of our haloscope system.

**Friday, June 12th at 11am
4-330 PAB**

Hosted by Yaroslav Tserkovnyak