## Phenomenology 2022 Symposium: From Virtual to Real



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## **Dark Matter Searches with Integrated Optics**

Monday 9 May 2022 17:00 (15 minutes)

Integrated optical chips containing large numbers of optical micro-resonators provide a powerful method to search for axion and hidden photon dark matter in the mass range 0.1 meV to 5 eV. Such chips have a large effective detector volume with high-finesse photon resonances at the visible and near-IR wavelengths associated with these dark matter masses. Further, they readily allow the use of established optical techniques to kinematically favor dark matter-photon interactions. I will describe a series of such dark matter searches, employing large numbers of microring cavities either in background EM fields or pumped with optical photons, which are sensitive to significant unconstrained parameter space.

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