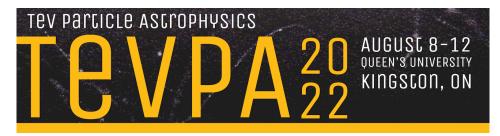Contribution ID: **162**   Type: **Parallel Talk**

Axion dark matter-induced echo of supernova remnants

Thursday 11 August 2022 16:30 (20 minutes)

Axions and axion-like particles (ALPs) are a theoretically promising dark matter candidate. In the presence of radio emissions from bright astrophysical sources, nonrelativistic ALPs can undergo stimulated decay to two nearly back-to-back photons, giving bright radio sources counterimages ("echoes") in nearly the exact opposite spatial direction. These echoes are spectrally distinct, and travel galactic distances to allow one to look back in time. In this talk, I will present a recent work showing that ALP-induced echoes of supernova remnants may be bright enough to be detectable by current radio telescopes, and their non-detection may be able to set the strongest limits to date on ALP dark matter in the 1-10 μeV mass range where there are gaps in coverage in past experiments.

Collaboration name

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Session Classification: Dark Matter

Track Classification: Dark Matter