

# Phenomenology 2025 Symposium



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## Decoding SBN Anomalies with Dark Matter and Neutrinos

*Tuesday 20 May 2025 18:15 (15 minutes)*

We propose new solutions to accommodate both the MiniBooNE electron-like and MicroBooNE photon low-energy excesses, based on interactions involving light dark matter and/or neutrinos. The novelty lies in the utilization of a photon arising from 2-to-3 scattering processes between a nucleus/nucleon and a neutrino and/or dark matter ( $\nu/\chi + N \rightarrow \nu/\chi + N + \gamma$ ) via exchanges of light mediators. We find that viable regions exist in the coupling and mass parameter space of the mediators and light dark matter that can simultaneously explain the observed excesses and remain consistent with current experimental constraints. We also highlight that these scenarios can be probed with upcoming data from various ongoing experiments.

### Mini Symposia (Invited Talks Only)

### Plenary (Invited talks only)

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