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IsoDAR: A High Power Cyclotron for Neutrino Physics and Beyond

Wednesday 8 September 2021 16:30 (30 minutes)

The existence of sterile neutrinos is an important question in our field. IsoDAR is a cyclotron-based electron antineutrino source that produces a pure, well-understood energy spectrum. IsoDAR generates high statistics, which when coupled with an inverse beta decay detector such as KamLAND, is capable of addressing observed anomalies attributed to sterile neutrinos at the 5 sigma level using electron-flavor disappearance. To achieve this level of statistics, the IsoDAR cyclotron must produce 10 mA of protons at 60MeV. This is an order of magnitude more power than any commercially available cyclotron. To achieve this, IsoDAR takes advantage of several innovations in accelerator physics, paving the way as a new technology.

Working group

WG3

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