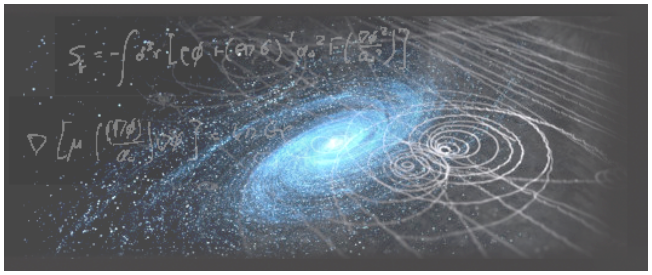

Contribution ID: **73** Type: **not specified**

Hunting for dark photon trident and beyond

Monday, 21 October 2024 13:45 (15 minutes)

We discuss a novel decay process for dark matter searches known as the dark photon-photon trident, where a dark photon can interact with Standard Model particles through kinetic mixing with the visible photon, producing three-photon final states. Indirect searches for this process are categorized into two scenarios. Firstly, dark photons can be produced by dark matter annihilation in celestial objects and dwarf galaxies. Secondly, the dark photon can itself constitute dark matter, which decays into photons falling into the energy range of X-ray observations. We give constraints on dark matter-Standard Model interactions and the dark photon parameter space based on these search strategies. Additionally, we present results for the decay of heavier dark photon dark matter beyond the dark photon trident scenario, along with a discussion of previous searches for dark matter decay.

Summary

Primary author: NGUYEN, Thong (Stockholm University)

Co-authors: Prof. LINDEN, Tim (Stockholm University); Prof. TAIT, Tim (University of California, Irvine)

Presenter: NGUYEN, Thong (Stockholm University)

Session Classification: Session 03