

Phenomenology 2019 Symposium



Contribution ID: 792

Type: **parallel talk**

Pion capture as a probe of new physics

Monday 6 May 2019 16:30 (15 minutes)

Light beyond-Standard-Model particles X in the MeV-100 MeV mass range can be produced in the nuclear and hadronic reactions, but would have to decay electromagnetically. We show that the simple and well-understood low-energy hadronic processes can be used as a tool to study X production and decay. In particular, the pion capture process can be used in a new experimental set-up to search for anomalies in the angular distribution of the lepton pair, which could signal the appearance of dark photons, axion-like particles and other exotic states. This process can be used to decisively test the hypothesis of a new particle produced in the $7\text{Li}+p$ reaction.

Summary

Authors: CHEN, Chien-Yi (Northwestern University); MCKEEN, David (TRIUMF); Prof. POSPELOV, Maxim (University of Victoria and Perimeter Institute); CHEN, Chien-Yi (Carnegie Mellon University); Dr CHEN, Chien-Yi; Dr CHEN, Chien-Yi (Department of Physics and Astronomy, University of Victoria; Perimeter Institute for Theoretical Physics)

Presenter: CHEN, Chien-Yi (Brookhaven National Laboratory)

Session Classification: BSM II