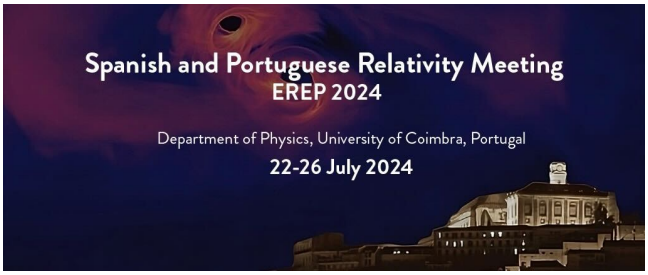

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Neutron decay anomaly, dark matter and neutron stars

Monday 22 July 2024 11:40 (20 minutes)

The discrepancies in measurements of the lifetime of the neutrons could be resolved considering an extra neutron decay channel into dark matter, with a branching ratio of the order of O(1%). Although the decay channel into a dark fermion χ plus visible matter has been already experimentally excluded, a dark decay into a dark matter fermion plus either a scalar or dark photon remains still a possibility. In particular, a model with a fermion mass $m_\chi \approx 1$ GeV and a scalar $m_\phi \approx 1 - 2$ MeV could provide not only the required branching ratio to explain the anomaly but also a good dark matter candidate with the right thermal abundance today, and being consistent with neutron stars physics.

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