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LFV signals with Dirac neutrinos and axions

In this work we present a phenomenological analysis of a WIMP/axion dark matter model with radiatively generated neutrino masses. In this model the PQ mechanism is responsible for Dirac neutrino masses through the realization of a five-dimension effective operator at one-loop level, as well as for the stability of all mediators in the loop by means of a remaining Z_2 symmetry originating from the spontaneous breaking of the PQ symmetry. As a result, mixed WIMP-axion dark matter scenarios are obtained. The model is implemented in high energy physics packages such as SARAH, SPheno and micrOMEGAS for its study, and constraints from LFV processes and direct detection searches are used to bound the valid parameter space of the model.

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