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Automatic Leptonic Tensor Generation for Beyond the Standard Model Theories DIEGO LOPEZ GUTIERREZ, Macalester College, JOSHUA ISAACSON, Fermi National Accelerator Laboratory — With the development of the Deep Underground Neutrino Experiment (DUNE) and Tokai-to-Hyper-Kamiokande (T2HK), we are entering the era of high-precision neutrino measurements. The colossal output of data from DUNE, plus the current data from several other neutrino experiments, will require a fast and efficient method of testing our BSM models in event generators. However, current methods for implementing a BSM theory in the event generators are prone to errors and time-consuming. We propose a novel program capable of automatically calculating the leptonic tensor for a given quantum field theory Lagrangian. This program is written in Python and utilizes the Universal FeynRules Output (UFO) format, the Lark package, and the Berends-Giele recursive relations to produce leptonic tensors that can be automatically implemented in several neutrino event generators, including those of DUNE.

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