Contribution ID: **24**   Type: **not specified**

A new software to compute MSSM squared amplitudes for particle physics and relic density calculations

Thursday 30 June 2022 18:00 (15 minutes)

The increasing need of numerical predictions for dark matter models is not always easy to satisfy looking at the software available today. With this work, we present a code to compute 2 to 2 squared scattering amplitudes using MARTY, with all the benefits of having a fully open source C++ code to handle. The numerical library generated in this way has been enriched with additional features, aiming at allowing the user to easily include and use such a library in external softwares. We restricted ourselves to the tree-level amplitudes in the MSSM relevant to solve the Boltzmann equation in a freeze-out scenario. Future development of this work will provide a direct interface with SuperIso Relic and the possibility to choose more general models.

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Session Classification: Parallel Session III.2