MOCa 2022: Materia Oscura en Colombia



Contribution ID: 9

Type: not specified

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

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.

Authors: ARBEY, Alexandre (Lyon U. & CERN TH); PALMIOTTO, Marco (Institut de physique des deux infinis Lyon, Université Claude Bernard Lyon 1); MAHMOUDI, Nazila (CERN and Lyon University (FR))

Presenter: PALMIOTTO, Marco (Institut de physique des deux infinis Lyon, Université Claude Bernard Lyon 1)