Contribution ID: **125** Type: **Poster**

Infrared finiteness in axion production through heavy meson decays

Saturday, 27 June 2026 15:00 (2 hours)

Axions as dark matter candidates may be produced via an infrared freeze-in mechanism from heavy meson decays in the early universe. In this scenario, higher-order corrections to the axion production rate contain infrared divergences. We demonstrate how holomorphic cutting rules, together with the Kinoshita-Lee-Nauenberg theorem, allow one to identify the minimal set of contributions required to achieve infrared-finite results. The procedure is systematic and can be straightforwardly generalized to other production processes.

Collaboration

Primary authors: MATAK, Peter (Comenius University Bratislava); SINSKA, Zuzana (Comenius University Bratislava)

Presenter: SINSKA, Zuzana (Comenius University Bratislava)

Session Classification: Poster session