

9th International Conference on High Energy Particle and Nuclear Physics in the LHC Era



Contribution ID: 545

Type: parallel

Using ultraperipheral collisions of lead ions to find signals of a new charged vector boson decaying into heavy neutral leptons.

Tuesday 7 January 2025 17:50 (20 minutes)

In this study, we present the potential of discovering new physics associated with a new charged vector boson decaying into heavy neutral leptons, using ultraperipheral lead ion collisions. We identify the optimal kinematic cuts that increase the statistical significance, which would allow us to detect signals of the possible existence of these particles, as predicted by the Vector Scotogenic Model. In addition, we calculate the necessary luminosity that the ATLAS experiment should reach in this type of collisions to achieve a statistical significance of 2σ and 5σ related to the existence of this new physics.

Author: OVIEDO TORRES, Yohan Mauricio (SAPHIR)

Presenter: OVIEDO TORRES, Yohan Mauricio (SAPHIR)

Session Classification: Parallel session 3: Beyond The Standard Model (1/2)