

Search for Heavy Stable Charged Particles in the CMS Experiment using the RPC phase II upgraded detectors

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Several theoretical models inspired by the idea of supersymmetry (SUSY) accommodate the possibility of HSCPs (Heavy Stable Charged Particles). The phase-II upgrade of the CMS-RPC system will allow the trigger and identification of this kind of particles exploiting the Time of Flight Technique with the improved time resolution that a new DAQ system will provide ($\sim 2\text{ns}$). Moreover, new RPC chambers will be installed to extend the acceptance coverage up to $\eta < 2.4$ with similar time resolution and better spatial resolution to complement this search.

In this talk a trigger strategy to detect HSCPs with the RPC detectors is presented, its performance is studied with Monte Carlo simulations and the expected results with the High Luminosity LHC data are shown.

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Session Classification: New Physics Experiments