

Gordon Research Seminar in Particle Physics: Pushing the Frontiers of Particle Physics During the LHC Run II Era

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Top FCNC (t χ) Simulation Through Monte Carlo Generators

At the LHC, physicists have been looking for additional scalar particles since the discovery of the SM Higgs. This project investigates in the behaviour of an additional neutral scalar particle (flavon), based on a cosmological beyond standard model (BSM) scenario (Froggatt-Nielsen model), through a top flavour changing neutral current (FCNC) process (t χ) simulated by Monte Carlo (MC) generators. Under the cosmological BSM model, the additional scalar particle is allowed to go through FCNC at tree level, which makes it an intriguing signal to search for. This new scalar particle is assumed to possess the same quantum numbers as the standard model Higgs Boson but having a different mass. Signals are generated over a mass scan of the scalar particle through the low mass region (from 10 GeV to 120 GeV) in order to gain some insight on how the signal would behave if it exists.

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Session Classification: Poster Session