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Study of Photon-associated Top Quark Pair Production in Semileptonic Decay Channel at the CMS Experiment

The top quark, being the heaviest known elementary particle, plays a crucial role in fundamental interactions. Predominantly produced through strong interactions, top quark events can include a photon in the final state due to an additional electroweak vertex. Investigating the production of top-antitop pairs($t\bar{t}$) with an associated photon offers a unique opportunity to test the predictions of the Standard Model. Any deviation in the observed cross-section from theoretical expectations could indicate the presence of new physics beyond the Standard Model (BSM). This study focuses on events characterized by a well-isolated, high p_T lepton (either an electron or a muon), at least three jets from quark hadronization, and an isolated photon. A very preliminary study with the LHC Run II dataset would be presented through this poster.

Field of contribution

Experiment

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