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## Search for top squark pair-production in the single-lepton channel in models with highly compressed mass spectra with the CMS experiment

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Supersymmetry (SUSY) is one of the most promising candidates to solve multiple problems with the Standard Model. In particular models with a compressed mass spectrum are highly motivated by naturalness arguments and cosmological constraints on the dark matter relic density. In this talk, a search for SUSY with a compressed mass spectrum using events with a high-momentum jet from initial state radiation, large missing transverse energy, and a low-momentum lepton is presented. In particular, a scenario of top squark pair-production is investigated, where the mass difference to the lightest SUSY particle (LSP) is smaller than the mass of the  $W$  boson. The search is performed in a sample of proton-proton collisions recorded with the CMS detector at a centre-of-mass energy of 13 TeV and the results are interpreted assuming a 100% branching fraction for the four-body decay of the top squark to a bottom quark, a fermion-antifermion pair and the LSP.

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