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Resonances in Final States with Leptons and Jets

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We study the phenomenology of models that contain resonances yielding final states with leptons and jets. Recent searches for a first-generation leptoquark by the CMS collaboration have shown around 2.5 sigma deviations from Standard Model predictions in both the eejj and e nu jj channels. Furthermore, the eejj invariant mass distribution has another 2.8 sigma excess from the CMS right-handed W plus heavy neutrino search. We briefly overview models that could account for the excesses. We focus on supersymmetric models with R-parity violation in which the Higgs is electron-like sneutrino, which could explain the lack of excess in analogous channels with muons. Finally, we make predictions for further signals in other channels.

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