Search for Possible Substructure in Leptons at \( \sqrt{s} = 7 \text{ TeV} \) with the CMS Detector at the LHC

A search for compositeness in electrons and muons is presented using 5 fb\(^{-1}\) of data collected with the CMS detector. Excited leptons (\(l^*\)) are assumed to be produced via contact interactions in conjunction with a Standard Model lepton followed by decay through the process \(l^* \rightarrow e\gamma\) giving a very clean final state consisting of two high \(P_T\) leptons and a high \(E_T\) photon.

2 candidate events are observed in the data after the analysis cut on the search variable and they are found to be consistent with the Standard Model prediction. For a contact interaction scale of \(\Lambda = \text{Mass}\), masses below 1.9 TeV/c\(^2\) are excluded.