Search for $W'$ bosons through decays to boosted top-jets\textsuperscript{1} ZACK SULLIVAN, DANIEL DUFFTY, Illinois Institute of Technology — We propose an alternate model-independent method to search for $W'$ bosons at the Large Hadron Collider by looking at dijets where one jet is identified as a boosted top-jet. Performing a detector simulated signal and background study, we demonstrate that the reach in effective coupling $g'$ is improved over existing analysis methods by a factor of 5 for $W'$ masses below 1.8 TeV, and extend the reach in mass up to 2.5 TeV in the 8 TeV data sample. In order to reach the maximum sensitivity, we describe a previously unexplored set of backgrounds involving muon tagging of high energy $b$ jets and standard model backgrounds to top-tag jets that we simulate. We propose a series of data-driven samples that might be used to measure the efficiencies for these new backgrounds in the LHC data.

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