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Light stop NLSP at the Tevatron and LHC

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How light can the stop be, given current experimental constraints? Can it still be lighter than the top? We consider a scenario of gauge-mediated supersymmetry breaking, where a stop NLSP decays into a W, b and gravitino. Focusing on the case of prompt decays, we simulate several existing Tevatron and LHC analyses that would be sensitive to this scenario, and find that they allow the stop to be as light as 150 GeV, mostly due to the large top production background. With more data, the existing LHC analyses will be able to push the limit up to at least 180 GeV. We hope this work will motivate more dedicated experimental searches for this simple scenario, in which, for most purposes, the only free parameters are the stop mass and lifetime.

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