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Search for Supersymmetry in final states with photons at the Tevatron

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Models of supersymmetry predict new heavy, neutral particles (neutralinos), that can decay into photon and the lightest supersymmetric particle, the gravitino. We present recent results on searches for these particles in proton-antiproton collisions at the Tevatron. No evidence of new physics is found and results are translated in limits on models of Gauge Mediated Supersymmetry Breaking. Final states that contains a photon and large missing transverse energy are used as well to search for a new light gauge boson in a hidden sector (dark photon) produced in decays of supersymmetric particles. Additional requirements for two spatially close leptons are applied in this case. No evidence for dark photons is found and limits are extracted on their production.

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