

Abstract Submitted  
for the TSF06 Meeting of  
The American Physical Society

**Search for Heavy, Long-Lived Particles that Decay to Photons at CDF**<sup>1</sup> EUNSIN LEE, MAX GONCHAROV, DAVID TOBACK, PETER WAGNER, Texas A&M University, VYACHESLAV KRUTELYOV, University of California at Santa Barbara, CDF COLLABORATION — Models of supersymmetry predict new heavy, long-lived particles, known as a neutralino, that can decay to a photon and a gravitino. We present a search for these particles in proton anti-proton collisions at  $\sqrt{s} = 1.96$  TeV using a new timing device on the Collider Detector at Fermilab. After a year of data taking we find no evidence for this process, and set limits on models of Gauge Mediated Supersymmetry Breaking.

<sup>1</sup>This work was supported by the U.S. Department of Energy.

Eunsin Lee  
Texas A&M University

Date submitted: 05 Sep 2006

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