

A SEARCH FOR SQUARKS AND GLUINOS USING THE JETS AND
MISSING ENERGY SIGNATURE AT DØ

Abstract

by

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This dissertation presents a search for evidence of production and decays of squarks (\tilde{q}) and gluinos (\tilde{g}) of Minimal Supergravity (mSUGRA) in $p\bar{p}$ collisions at a center of mass 1.8 TeV using DØ detector at the Fermilab National Accelerator Laboratory. Data corresponding to $92.7 \text{ pb}^{-1} \pm 4.1 \text{ pb}^{-1}$ were examined for events with large missing transverse energy, at least two, three or four jets, and the absence of isolated leptons. No events were observed in excess of Standard Model background predictions. Limits are placed in the mSUGRA $M_0 - M_{1/2}$ and $M_{\tilde{q}} - M_{\tilde{g}}$ planes for fixed parameters $\tan \beta = 2$, $A_0 = 0$, and $\mu < 0$.