



Search for Squarks in R-parity Violating Supersymmetry in ep Collisions at HERA

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A search for squarks in R-parity violating supersymmetry is performed in e^+p collisions at HERA using the H1 detector. The full data sample taken at a centre-of-mass energy $\sqrt{s} = 319$ GeV is used for the analysis, corresponding to an integrated luminosity of 255 pb^{-1} of e^+p and 183 pb^{-1} of e^-p collision data. The resonant production of squarks via a Yukawa coupling λ' is considered, taking into account direct and indirect R-parity violating decay modes. Final states with jets and leptons are investigated. No evidence for squark production is found and mass dependent limits on λ' are obtained in the framework of the Minimal Supersymmetric Standard Model and in the Minimal Supergravity Model. In the considered part of the parameter space, for a Yukawa coupling of electromagnetic strength $\lambda' = 0:3$, squarks of all flavours are excluded up to masses of 275 GeV at 95% confidence level, with down-type squarks further excluded up to masses of 290 GeV.

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