

SEARCH FOR CONTACT INTERACTIONS IN
DEEP INELASTIC SCATTERING
AT ZEUS

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The Neutral and Charged Current Deep Inelastic Scattering cross sections have been measured using 46.7 pb^{-1} of ZEUS e^+p data collected from 1994 through 1997 at 300 GeV center-of-mass energy. Standard Model predictions using DGLAP based parton distribution functions provide a good description of the data, with no significant deviations observed.

A search was performed for signatures of physics beyond the Standard Model. Thirty $eeqq$ contact interaction models were tested in the neutral current channel, as well as four $e\nu qq$ contact interaction models in the charged current analysis. The models were fit to the Q^2 distribution in the data using the method of maximum likelihood, and all were found to be consistent with the Standard Model. Limits on the contact interaction coupling amplitude were calculated at 95% confidence level for each model. The corresponding lower bounds on the effective mass scale Λ were found, ranging from 1.4 TeV to 5.8 TeV under the hypotheses considered.