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Limits on contact interactions and leptoquarks at HERA

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High-precision HERA data corresponding to a luminosity of around 1 fb^{-1} have been used in the framework of $eeqq$ contact interactions (CI) to set limits on possible high-energy contributions beyond the Standard Model to electron-quark scattering. Measurements of the inclusive deep inelastic cross sections in neutral and charged current ep scattering were considered. The analysis of the ep data has been based on simultaneous fits of parton distribution functions including contributions of CI couplings to ep scattering. Several general CI models and scenarios with heavy leptoquarks were considered. Improvements in the description of the inclusive HERA data were obtained for a few models. Since a statistically significant deviation from the Standard Model cannot be established, limits in the TeV range were set on all models considered.

Primary authors: WING, Matthew (University College London); ZARNECKI, Aleksander Filip (University of Warsaw)

Presenter: ZARNECKI, Aleksander Filip (University of Warsaw)

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