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## Elastic $Z^0$ production at HERA

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A search for events  $ep \rightarrow ep Z^0$  has been performed in ep collisions at HERA using the ZEUS detector. The search is based on the entire HERA-I and HERA-II data set, amounting to  $0.49 \text{ fb}^{-1}$  of integrated luminosity. The  $Z^0$  was searched in the di-jet decay mode with elastic condition defined by  $\eta_{\text{max}} < 3$ , where  $\eta_{\text{max}}$  is defined as the pseudorapidity of the energy deposit in the calorimeter closest to the proton beam direction. A di-jet mass peak is observed at the  $Z^0$  mass and the number of signal events is extracted from a fit to the mass spectrum. The elastic  $Z^0$  production cross section is determined and compared to the SM prediction.

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