

KINEMATIC FITTING OF NEUTRAL CURRENT EVENTS IN DEEP INELASTIC ep COLLISIONS.

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We present a technique to reconstruct the scaling variables defining ep deep inelastic scattering based on a kinematic fit. Most techniques in use rely only on two of the four available quantities (energy and angle of the electron and struck quark), while the kinematic fit uses all available information simultaneously. Initial state radiation is included in the framework. The fitting is performed in a Bayesian framework [1] and informative priors are used for the relevant quantities fitted. The method has been tested on a simulated neutral current ep sample at a center of mass energy of 318 GeV with $Q^2 > 400 \text{ GeV}^2$, spanning the $x > 10^{-2}$ phase space. A significantly better resolution in the reconstruction of the scaling variables is achieved.

Submitted on behalf of a Collaboration?

No

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