Abstract Submitted
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Exchange currents in light-front quantum models of elastic electron-deuteron scattering[1] YUNFEI HUANG, WAYNE POLYZOU, The University of Iowa — We present calculations of exchange current contributions to elastic electron-deuteron scattering in a Poincaré invariant quantum model with a light-front kinematic symmetry. Current conservation, current covariance and discrete symmetries can be used to express all of the elastic current matrix elements in terms of three independent matrix elements of the + component of the current. Invariant "impulse approximations" are defined by assuming that there are no two-body contributions to the independent current matrix elements [1]. While the covariance and current conservation constraints generate implicit exchange currents, it is also possible to add explicit exchange current contributions to the independent current matrix elements. We calculate the contribution of model "pair currents" that have an operator structure motivated by exchange currents contributions generated by the Blankenbecler-Sugar reduction of the Bethe-Salpeter equation [2].
[1.] P.L.Chung, et.al., Phys. Rev. C37, 2000(1988).
[2.] F. Coester and D.O.Riska, Annals of Physics 234(1994)141.

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Wayne Polyzou
The University of Iowa

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