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Momentum Distributions for $^2H(e,e'p)^1$ SABINE JESCHONNEK, The Ohio State University at Lima, WILLIAM P. FORD, The University of Tennessee, J.W. VAN ORDEN, Old Dominion University & Jefferson Lab — A primary goal of deuteron electro-disintegration is the possibility of extracting the deuteron momentum distribution. This extraction is inherently fraught with difficulty, as the momentum distribution is not an observable and the extraction relies on theoretical models dependent on other models as input. We present a new method for extracting the momentum distribution which takes into account a wide variety of model inputs thus providing a theoretical uncertainty due to the various model constituents. To test the extraction, pseudo-data was generated, and the extracted "experimental" distribution, which has theoretical uncertainty accounted by this extraction method, can be compared to the theoretical distribution. The calculations presented here are using a Bethe-Salpeter like formalism with a wide variety of bound state wave functions, form factors, and final state interactions. Our method takes into account the theoretical uncertainty from the various model constituents entering the calculation. In the examples we compared, the original distribution was typically within the error band of the extracted distribution. The input wave functions do contain some outliers which are discussed in the talk.

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