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Data unfolding with Wiener-SVD Method

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Data unfolding is a commonly used technique in the HEP community, particularly in cross-section measurements. Inspired by the deconvolution technique in digital signal processing, we propose a new unfolding method based on Wiener filter and the SVD technique. Unlike traditional unfolding techniques, the Wiener-SVD unfolding method achieves data unfolding by maximizing signal to noise ratios in the effective frequency domain without having to scan over regularization strength. The mathematical formulation of the method and few applications of the Wiener-SVD unfolding technique will be presented; the advantages and disadvantages, as well as the nature of the unfolded results will be discussed.

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