

On fits to correlated and auto-correlated data

Wednesday, 21 December 2022 11:30 (30 minutes)

Observables in particle physics and specifically in lattice QCD calculations are often extracted from fits. Standard χ^2 tests require a reliable determination of the covariance matrix and its inverse from correlated and auto-correlated data, a challenging task often leading to close-to-singular estimates. These motivate modifications of the definition of χ^2 such as uncorrelated fits. We show how the goodness-of-fit measured by their p-value can still be estimated robustly for a broad class of such fits.

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Session Classification: Session 10