

# An Error Analysis Toolkit for Binned Counting Experiments

*Wednesday, 19 May 2021 15:00 (30 minutes)*

We introduce the MINERvA Analysis Toolkit (MAT), a utility for centralizing the handling of systematic uncertainties in HEP analyses. The fundamental utilities of the toolkit are the `MnvHnD`, a powerful histogram container class, and the systematic Universe classes, which provide a modular implementation of the many universe error analysis approach. These products can be used stand-alone or as part of a complete error analysis prescription. They support the propagation of systematic uncertainty through all stages of analysis, and provide flexibility for an arbitrary level of user customization. This extensible solution to error analysis enables the standardization of systematic uncertainty definitions across an experiment and a transparent user interface to lower the barrier to entry for new analyzers.

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