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## **mplhep 1.0 (mplhep & plothist)**

Visualizing pre-binned histograms is a HEP domain specific concern which is not adequately supported within the greater pythonic ecosystem. In recent years, mplhep has emerged as a leading package providing this basic functionality in a user-friendly interface. It also supplies styling templates for the four big LHC experiments - ATLAS, CMS, LHCb, and ALICE. At the same time, the plothist package has been developed to provide advanced methods for comparing data and model components. Both packages build on top of matplotlib and interface with the hist and boost-histogram libraries. Recognizing their overlap and complementary strengths, the packages are being merged into a single Python library in order to improve the user experience. This unified package, under the name *mplhep* and with the support of Scikit-HEP community, will streamline histogram visualization in high-energy physics and enable users to produce publication-ready figures with minimal effort.

### **Significance**

By extending mplhep's capabilities with plothist's advanced data-model comparison, this unified package simplifies and enhances histogram visualization in HEP. With Scikit-HEP community support, this tool is setting a new standard, making publication-ready figures easier and more efficient than ever.

### **References**

mplhep last PyHEP presentation: <https://indico.cern.ch/event/1019958/timetable/#7-mplhep>

Plothist presented at PyHEP.dev: <https://indico.cern.ch/event/1375573/timetable/#54-plothist-integrating-with-o>

### **Experiment context, if any**

LHC, Belle II

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