



Rivet & reinterpretation feedback

HepData steering committee

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Rivet & HepData



History & links

Long connection between Rivet and HepData: co-development & key source of reference data. HD supports Rivet's YODA data format, reflects analysis availability via online JSON file

Analysis types

Rivet supports both detector-unfolded and reco-level analyses: both types of HD dataset essential. Metadata: steering cards, SLHAs, etc. equally important: more, please!

Divergence

Unintentional divergence of Rivet and HD datafiles. Experiments submitting different data to each!
< 20% compatible in 2016 -> 52% Nov 2019 -> 52% now. *Big* improvement!

Remaining awkward sync issues: zero-width "labelled" bins; modified data; dataset ordering. Coordinate effort to fix: combination of Rivet/YODA features (new finalize semantics + "hdsync" scripts), maybe improved HD awareness of binning vs. point+err heuristics: other benefits, too

Reinterpretation & HepData



Rivet remains a general-purpose utility for reproducing analysis procedures on MC events. Higher-level picture(s) of steering those events is left to each application's preferences

Other toolkits leveraging Rivet: Professor (tuning), TopFitter (EFT), Contur (UFO BSM), ...

As mentioned, (search) analysis metadata is *very* welcome: SLHAs, UFOs, MG cards, cut flows, *background/MC predictions*... **main action needed here is from experiments**

Big issue in interpretation is bin/obs combination: correlations are *crucial*. Conservative single-bin approaches won't cut it much longer. See LHC Reinterpretation Forum [briefing doc](#)

HD supports correlations via identified per-bin nuisances: now exported to YODA format.

Often experiments submit correlations as covariance tables or similar: connection to primary dataset lost. **Semantic** awareness of what correlations *mean* will have big impact — enable linking of datasets, conversions between representations, full likelihoods, etc. *Also helps target plotting!*