

# Rivet monthly dev meeting

5 Nov 2019

# Physics-technical tasks

## Done in last month, for R3.0.2 release (+ Y1.8.0)

- Contrib analysis synchronisation: 1 ALICE (more coming), 2 ATLAS, 2 CMS, 2 LHCf, 1 LHCb  
— **Chris, Jon & Andy: finish today?**
- GA minimiser: tweaked, checked & merged  
— **Leif, Andy & Neil, DONE**
- “Bin width normalisation”: mkScatter() fns enhanced with optional bin{width,area}div bools  
— **Andy, DONE.** *Needs mapping to wrapped multiweight types in R3.1*
- Refine luminosityfb() & luminosity() fns to return numbers, so usable in analyses  
— **Andy, DONE**
- Add .dot(v4) pass-through method to ParticleBase, for Jet/Particle use like vectors  
— **Andy, DONE**

## All R3.0.2 technical tasks done apart from last analysis integration (and validation)?

NB. YODA 1.8 API changes are disruptive & parsing developments incomplete: wait for R3.1

# Physics-technical tasks

## And for later R3.1.0 + Y1.8.0 releases

- YODA lazy YAML parsing, re. huge systematics lists — **Jon & Louie: DONE**
- Scatter points know their parent object, needed for nicely distributing correlation info — **Louie: DONE (fixing a few hiccups in writeYODA)**
- Beam comparison consistency — **Andy: TBD**
- Add Transformers list to Fastjets (pay the CPU penalty now, refine when possible) — **Andy: TBD**
- Common MissingMomentum/SmearedMET base class, for truth/smear switching — **Andy: TBD**
- Fix & extend Particle impact param methods: closestApproach,  $d_0$  and  $z_0$  — **???: TBD**
- Connect Cutflow(s) classes to multiweight system, and histogramming — **???: TBD**
- ... ?

# Hosting migration

## Switch to git and gitlab.com (huge thanks to Frank S and Chris G)

- Not splitting repo — implications for future package core+analyses split?
  - Allow custom plugin location to supersede built-in plugins? (e.g. experiment could pull latest version of Rivet release maintenance branch and build new plugins without having to wait for new Rivet version)
- Analysis diff + count script rewrites: only needed by 3.0.3 or 3.1.0 release
- New contrib mechanism? Needed asap:
- Complete move from HF, other than a stub page: any plan to remove that?  
Documentation push to convert wiki from HF to Gitlab
- YODA migration, too...
- (LC) Add some CI? Eg to spot issues w/WriterYODA which've been in there since June...
- ... ?

# HepData sync status

**Of 416 Rivet analyses in rivet-3-0-x/analyses, 190 (45.7%) were compatible and 226 (54.3%) were incompatible.nd for later R3.1.0 + Y1.8.0 releases**

- Compare with Lunga:

*Of 416 Rivet analyses in Rivet-2.7.2, 158 (38.0%) were compatible and 258 (62.0%) were incompatible.*

- HDsync feature branch merged into release-3-0-x — **Chris: DONE**
  - This will allow many of the outstanding mismatches (e.g. 0-width bins) to be patched until a more elegant solutions is in place

# Focus groups

## Docs

- new documentation push on move to gitlab — migrate wiki and update, esp. with instructions more tailored for newbies. Neil, Stephen, ~Andy, ~Chris ...

## Stats

- Louie to lead push on YODA developments, since correlations are a major driver. Branch for post-Y1.8/R3.1 with generic binning/scatter design. Defines YODA 2.0. **LOUIE: thoughts?**  
-> **See backup**

## Plotting

- Christian B to merge his MPL to gitlab when available. “Plotting group” (CB, Holger, ~Andy, etc.) to refine, split appropriately between Rivet and YODA. Aim to include in R3.2.0

## Face-to-face subgroups meeting in Nov/Dec?

# AOB

## Papers

- v3/multiweight: Jon coordinating — started, need contributions to fill out skeleton — **TODO: all!**
- Heavy ion: half-done... Christian B: Final push, goal: arXiv ~December.  
<https://gitlab.com/bierlich/hi-rivet-paper>, contributors needed — **Christian to edit & hassle**

## Workshops, tutorials, etc.

- Hosting next Rivet dev workshop: **who & where?!**

**HepData sync effort:** the issue's still there... status?

## Reminder: MCnet shortie posts!

- Still 3 (?) at Glasgow & UCL. EU money + Rivet/Contur. Pls encourage students to apply...

# Backup

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# YODA developments (LC)

- Main items on the horizon, some of which we've been mulling for some time:
  - Replacing Scatter\*D/Histo\*D with “Binned Object” class? Possible features:
    - Non-contiguous bins
    - Optional division by bin width
    - Would not have a specific dimension (?)
    - Bins needn't have width -> use for correlation/covariance matrices
    - How to store error breakdown for these objects?
    - ... will put together a proper “specification sheet” and we can start working towards it
  - Plotting: building on C. Bierlich's design using Matplotlib
  - Using gitlab to run CI tests for YODA: basic compilation and tests that read/write and basic yoda API operations work as expected.