

Rivet monthly dev meeting

3 July 2024

Recent activity / TODOs

- **Rivet 4.0.1 development**
 - HepMC 3.3.0 released: compression conflict to be resolved... fully support 3.2.x?
 - ⇒ based on MR, use “old” Rivet decompressor if HepMC < 3.3.0, otherwise use “new” minimal include approach
 - Peter R analyses and patches incorporated: thanks!
 - Version 3.1.11 if and when
 - Many plotting improvements (thanks to Chris G)
 - Other previous reports
- **YODA 2.0.1 development**
 - Profile included division by bin-volume factor
 - Slight tweak in Estimate calculation from empty bins in non-profile histos
- **Write-ups**
 - YODA2 paper refs responded to: accepted to SciPost Codebases
 - Rivet4 release note also submitted to SciPost Codebases, editor assigned 19 June

Next major feature ideas

- **But, main current ideas for development / applications:**
 - HI framework Scatters→Estimates (Leif, Christian B?)
 - Design, refine and explicitly implement primary-particle definitions ⇒ EIC, LLPs
 - Good discussion at MC tools workshop last week: see [summary](#)
 - Requires predicate functions to define primariness from status = 1, 2
 - Needs to be semi-implicit: semantic change to FinalState: not just gen status=1
 - Database needed for $c\tau_0$ tests; particle-specific $c\tau$ or radius tests for BSM LLPs
⇒ **discuss with Louie/Sihyun re. fiducial LLP definitions (also e.g. LHCb)**
 - *Careful* rollout and regression testing needed
 - ALICE, EIC, FCC feature requirements?
 - E.g. impact-param and secondary-vertex
 - Also useful for LHCb... and some LLPs? Exists, needs testing
 - HI jet subtraction mechanism
 - Post-processing script system: auto-discovery and running of fits etc.?
 - Flavour-sensitive kT clustering in LeptonFinder (AB)
 - Experimental systematics machinery (AB)

Meetings, coordination, etc.

- **Upcoming and ongoing meetings**
 - Requests for CMS / ATLAS / ALICE / FCC / other Rivet & Contur tutorials...
 - ⇒ Jon/Sihyun re. CMS: status? Other expts? ALICE, LHCb, ...?
 - ⇒ ATLAS cross-group interest, **asked to propose dates**
(came too late during/around MCnet summer school)
 - 14 Oct ATLAS week, 8 Nov Physics Week: focus on new PhD students?
⇒ **AB to email Phys Coords / PMG convs**
 - In-person events to meet around
 - ~~Pythia meeting, Oxford, wk 29 April:~~ useful feedback and inputs, cf. MCplots
 - ~~Dark QGD meeting in Aviemore (22-25 Apr):~~
OSCAR 0.5 FTE funding, UCL/Wits application cf. CHACAL+workshop
 - ~~HSF (Hamburg) 13-17 May:~~ feedback?
 - ~~MCnet School at GERN, June 10-14:~~ new tutorial Docker setup: ⇒ **add to CIs!**
 - ~~IPPP MC tools workshop, IPPP, 25-28 June (CG, AB, Marek):~~ lots of ideas
 - **Aspen amplitudes/tools workshop, Aug-Sep**

AOB

- **Feedback & requests**

- **TODO: filtering to show only most-crucial analyses on coverage pages (if doing this, we should possibly also have an explicit “pre-triage” marker for unclassifieds)**
- **TODO: request Mac CI runners (Intel *and* M1) on CERN Gitlab → through ATLAS?**
Asked: CERN IT have no plan and say Mac users should user containers for physics code. Seems naive / expt-code-centric. Do we have any influence through MCnet→TH?

⇒ Get GSoC student to add Mac runners in CI

- **Request for ntupling, specifically EDM4HEP format.** AB wrapper analysis base-class half-written; format of FCCAnalysis not 100% clear. **Waiting on Sarah W for example.**
Asked re. direct MC→EDM4HEP for FCC-ee etc. (via Alan Price, Dirk Zerwas)
⇒ Some EDM4hep discussion / input at tools workshop: MCnet should input
- **HEPData sync update from Rivet; linked theory predictions in HD requires Inspire**
- **SciPost are still looking for editorial fellows in hep-ph...**

AOB

- Feedback & requests

- **Multiarch Docker builds via CI: GSoC project UNDERWAY**

- <https://gitlab.cern.ch/feickert/multiplatform-docker-build-example>
<https://www.docker.com/blog/how-to-rapidly-build-multi-architecture-images-with-buildx/>
- [GSoc MCnet projects](#) taken to proposal stage for LHAPDF and Rivet+YODA
- <https://github.com/hoppet-code/hoppet/blob/master/.github/workflows/main.yml> – Github Actions CI with multiarch.
<https://gitlab.cern.ch/DPHEP/cernlib/cernlib/-/blob/master/.gitlab-ci.yml> – CERN GitLAB with multiarch

- **heprivet.org**

- Time to finish this: **urgent actions and CI deployment.**
- CG suggested using the Docker images to generate doc contents.

BACKUP