News and Information

## Jet Trigger Signature Meeting

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Upcoming Events of interest to Jet Trigger Community

- *b*-**Jet Trigger Workshop:** This coming Thursday and Friday
  - https://indico.cern.ch/event/318653/
  - Offline Software Review, Online Software+FTK, Menu & Configuration, Physics Optimisation
- **TDAQ Week in Copenhagen:** Next week!
  - https://indico.cern.ch/event/289737/
  - New nMCM functionality, Run II L1Calo calibration, L1Topo, jFEX+gFEX, HLT Calo, Phase II planning and discussions
- **DC14 for Run II:** production will start at the end of July using 19.1.1 (more details below)
  - We are in bug fixing mode now. No new features anymore until 19.1.1
  - Main focus is now to validate xAOD content
- **Hadronic Calibration Workshop:** 8-12 August
  - https://wwwatlas.mpp.mpg.de/munich-2014/
  - Significant opportunity for trigger studies and milestones
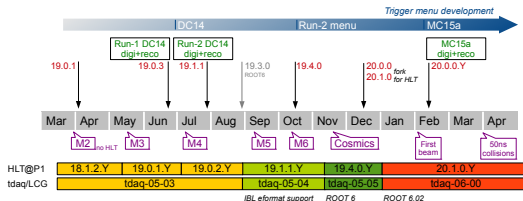
List of ongoing authorship qualification Tasks

- **Valentinos Christodoulou:**
  - Jet trigger core software development, testing, performance evaluation and assessment of menu options.
- **Annabelle Chuinard:**
  - Development and application of tools to assess the pileup dependence of jet trigger rates and efficiencies.
- **David Freeborn:**
  - Reorganisation of the jet trigger software and menu including maintenance and development of validation algorithms
- **Ruchika Nayaar:**
  - Study FTK track performance and track properties in order to provide JVF and JVT algorithms for jet trigger chains.
- **Sebastien Prince:**
  - Development and implementation of software validation for the jet trigger, with the aim of harmonizing online and offline environment and removing legacy code.
- **Markus Wobisch:**
  - Multijet trigger menu optimization and rate studies and its performance under various pileup configurations, for several choices of algorithms.

Please contact the relevant mailing lists, or the coordinators and your supervisors, if you have any questions or comments or concerns!

We hope to have regular updates every 2-3 weeks from all authorship candidates!

Other ongoing efforts

- Software reorganisation (Peter S.)
- Software maintenance and development (Peter S., Nuno Anjos)
- Partial Scan, Trigger Tower and RoI-based chains (Peter, Ademar, D. Freeborn)
- Use of clusters from HLT calo (Erich)
- Monitoring software for Run II (Lee)
- Validation software for Run II (Lee, Sebastien)
- E/p trigger development for Run II (D. Miller, Joakim Olsson)
- HT trigger, jet reclustering (R.Piegaia and UBA team)
- Single jet menu optimisation and performance studies (Lourenco Lopes, Rob Cantrill)
- Optimization of pileup subtraction in HLT and performance comparison to offline (Open)

Please let us know of any other intended studies/tasks!

Jet Trigger Signature Group Email Lists: please use them!

- **`atlas-trig-jet@cern.ch`**:
  - Overarching mailing list. Event announcements and general news and information
- **`atlas-trig-jet-menu@cern.ch`**:
  - Dedicated to the discussion of jet trigger menu and software.
  - Technical or detailed software questions or reports of issues should be sent to this list
- **`atlas-trig-jet-monitoring@cern.ch`**:
  - Discussions of monitoring and performance of jet trigger algorithms
  - General questions about validation and monitoring software should be discussed here.
  - General questions about jet trigger performance should be discussed here
- **`atlas-trig-jet-pileup@cern.ch`**:
  - Discussions related to pile-up issues should be sent to this list

These are not consistently high traffic email lists. Please sign-up for these lists if you work on any of these topics!

Focus points for studies using DC14 datasets

- **Signal efficiency studies:** study several available jet triggers in multiple channels (exotica, SUSY, top)
- **Trigger bias comparisons:** Comparisons of p_T and η, at least, comparing the signal & background before trigger, after trigger, and after the offline analysis
  - Needs some optimization of the offline analysis
- **Multijet bias comparisons:** Explore other variables for multijet final states, including minimum separation between jets, p_T and η of the leading jet, sub-leading jet, etc
- **Trigger efficiency biases:** Study the effect of the trigger (turn-on curve, angular coverage) on the offline selected sample, in order to validate the trigger simulation and determine if there are systematic effects which may depend on the channel topology.
  - Are other support triggers needed, for example?
- **Tracking performance and comparisons:** Study the use of HLT and FTK tracks in multijet final states in particular

Major tasks for the upcoming DC14 release

- Partial Scan vs Full Scan comparisons (needed soon!)
- Jet configuration for the trigger and offline
- Validation of the xAOD jet object and attributes
- Standardized efficiency curve software tools

MC datasets to be processed for DC14

From the list of MC datasets currently scheduled to be processed for DC14, here are those that are relevant for the jet trigger community:

- dijets (PYTHIA, HERWIG++)
- γ+jet
- minbias
- $t\bar{t}$
- $t\bar{t}H$
- $X \to HH \to b\bar{b}b\bar{b}$
- $W' \to WZ \to \ell\ell jj$
- $Z' \to t\bar{t}$

What are we missing for the jet trigger studies?

Summary

- **DC14 will be upon us imminently:**
  - Currently scheduled for a few weeks from now, with datasets already defined
  - Several open software tasks, but in "bug fixing mode" now
- **Many ongoing authorship qualification tasks:**
  - Extremely important work from a group of dedicated students
  - Critical work and so it is helpful to hear updates frequently
- **Details of Run II menu need to be addressed:**
  - Need performance and bias studies for signals and rate estimates for backgrounds
  - Detailed physics cases for L1 thresholds for H_T (HT200), jets (J100), and multijets (4J20) are essential, including overlap studies and possibilities for rejection in HLT

Coming up!

- **Milestone for studies:**
  - DC14 launch in August
  - Hadronic Calibration Workshop (8-12 September)
- **Need to prepare team of jet trigger experts for online operations next year:**
  - training during M weeks and technical runs
  - need presence at CERN
  - OTP class 2
  - Expect more details as we know them

Additional Material

Outline

4 *Backup slides and additional information*