

Highlights of the JME Workshop 2022 in Bologna Florence

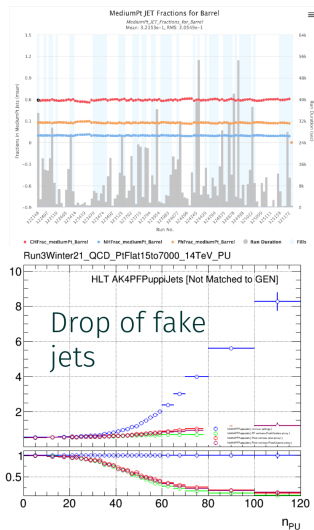
KIT-ETP in Florence 11.-13. April 2022

Jost von den Driesch, Robin Hofsaess, **Maximilian M. Horzela**, Soureek Mitra,
Nikita Shadskiy, Cedric Verstege | 09. May 2022



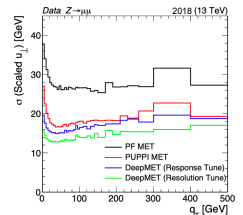
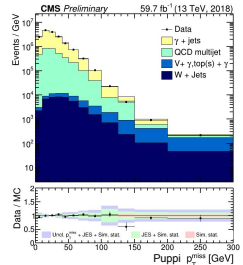
DQM & Trigger

- Time dependent H(istoric)DQM: new tool with GUI
 - Investigate critical runs on lumi-section level
- Reducing manpower needs with ML-based DQM-tools to classify good and bad data
 - Studies ongoing
- RelVal parallel for Run 3 and Phase 2 ongoing
- PUPPI at HLT promising
 - Stability against PU
 - Drop of fake jets
 - Dedicated PUPPI tune for HLT

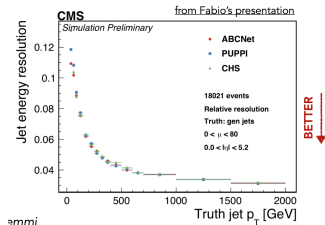
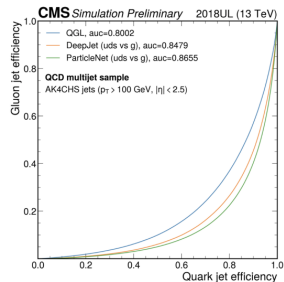


MET news

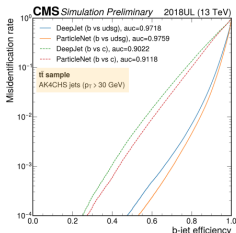
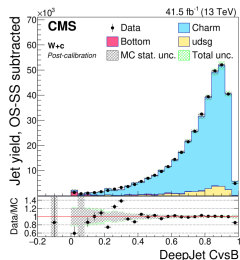
- Run 2 MET-paper in preparation
- Wrap up of Run 2
 - Performance in gamma+jets, Z(ll)+jets, W(lν)+jets
 - MET filters, trigger efficiencies
 - MET algorithms (PF MET, PUPPI MET, DeepMET)
- New(-ish) MET Reco Contact from KIT (Michael Waßmer) specifically mentioned
- Preparing for the future (Run 3)
 - Centralizing general MET workflow (with COFFEA)
 - Deep/GraphMET development and calibration



- Puppi as default jet collection in Run3 → new Puppi tune (v16) with track-vertex association (tva)
- QG likelihood → DeepJet, PNet for quark-gluon separation
- Attention Based Cloud Network (ABCNet) as PU ID tagger
- All JMAR already use NanoAOD (JMENano) as common format



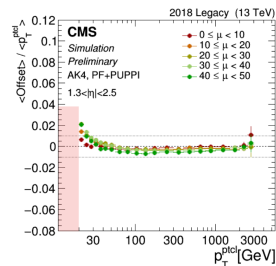
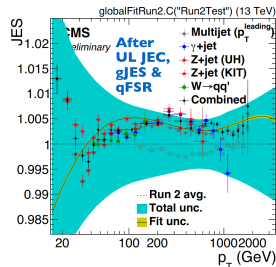
- Shape calibration for Charm tagger
[JINST 17\(2022\)P03014](#)
- DeepJet commissioned at HLT & offlineDQM, ParticleNet available at HLT for Run3
- ParticleNet to be the new GUT (Grand Unified Tagger)?
- Investigating dedicated input building for high- p_T regime
- Timing information included in Phase 2 b-tagging → very stable performance even at ≈ 200 PU



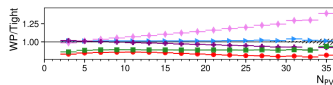
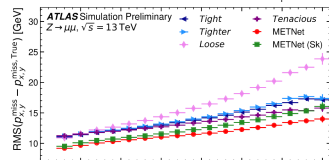
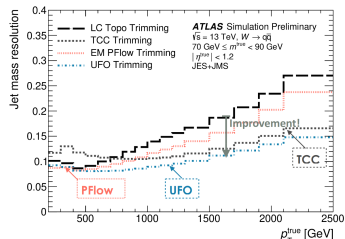
News from the JERCs

KIT transferred responsibilities in
 $Z \rightarrow \ell^+ \ell^-$ residual calibration to Helsinki

- Wrap up Run 2 as baseline towards Run 3
 - Many improvements in Run 2 UL calibration
 - Porting “final” Run 2 analyses to new **coffea & JMENano** based common framework
 - Improve slow turnaround time
- CHS → PUPPI: no explicit L1 corrections needed (tbd)
- Run 2 JEC paper expected . . .
- Early Run 3 paper on PUPPI-JEC next year (tbd)



- Topo Clusters (noise suppressed calo cells)
 - jet constituents combining calo and track information
 - PFlow: Subtract track energy from clusters, tracks and clusters remain
 - Track Calo Clusters (TCC): Split Topo Cluster energy to matched tracks
 - Unified Flow Objects (UFO): Combination of both with smooth transition
- UFO jets + Constituent Subtraction (ghosts matched to constituents with ΔR) + Soft Killer (remove soft particles until half of η - ϕ -grid-space empty) default jet definition for Run 3
- ML-based METNet working point shows the best resolution



Most Important

- JetMET in the process of “Wrapping up Run 2” and “Ramping up to Run 3”
C. A. McLean
- Efforts towards common analysis frameworks (with workflow management) take shape
 - **Coffea**, **JMENano**, REANA/LAW(?)
 - i.e. MET and JES & JER
- PU-Mitigation for Run 3: PUPPI default, CHS dropped

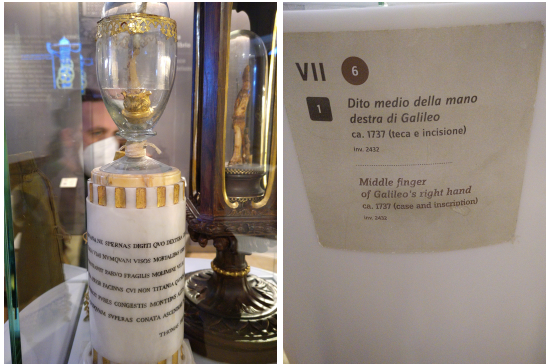
- Very productive and informative workshop
- Excellently organized, gorgeous location and delicious food (& wine)



Workshop Photo



New Mattermost Emoji



Now available as Emoji on Mattermost

When you want to show someone Galileo's middle finger, type `:galileo:`