LHC EW WG 2: Jets and EW bosons

- Conveners:
  - ATLAS: Eram Rizvi, Heberth Torres
  - CMS: Hannes Jung, Emanuela Barberis
  - LHCb: Stephen Farry, Will Barter
  - TH: Marek Schoenherr

- further reading: WG Twiki

LHC EW WG 2: Jets and EW bosons

- Mandate of LHC EW WG:

  - Support, compare and combine measurements probing the electroweak structure of the SM (fundamental electroweak parameters; tests of the gauge structure);

  - Pursue theoretical developments in support of these measurements, and of their interpretation;

  - compare and combine ancillary measurements performed in support of the EW precision measurements, and define how they constrain the theoretical uncertainties.

  - Organize, compare and combine measurements of jet production; understand their implications on the strong interaction and PDFs.

  - Final states:
    - Jet production (inclusive, and in association with vector boson)
    - Single vector boson production
    - Di-boson and multi-boson production

Structure of LHC EW working group

- WG1: Drell-Yan physics and Electroweak precision measurements
  - Inclusive single boson production
  - from x-sections and constraints on QCD/PDFs to measurements of electroweak parameters

- WG2: Jets and EW bosons
  - Inclusive Jets and V+jets
  - Comparison of experimental results; correlation models; …
  - Comparison to theory; PDF interpretation

- WG3: EW multi-boson production
  - x-section measurements and comparison with theory
  - BSM interpretation: aGC's, EFT, ...

Mandate for WG2: Jets and EW bosons: experiment

- Goal: common measurements
  - define common binning in y and p_T (for inclusive jets, V+jets etc)
    - goal: direct comparison of jet measurements
  - combine/compare inclusive jet and V+jet measurements (same binning, same procedure)
  - flavor tagged x-sections: HQ inclusive jet and V+HQ

- Corrections, uncertainties, unfolding
  - unfolding and evaluation/propagation for uncertainties, following discussions in other forum (stat and pdf)
  - common way of correlation matrices and set of sources
    - correlated uncertainties in inclusive jets, V+jets, HQ etc
  - define consistently NP - and parton shower corrections & uncertainties

- Discussion on data combination:
  - discussion/understanding of correlated uncertainties between experiments

Mandate for WG2: Jets and EW bosons: theory

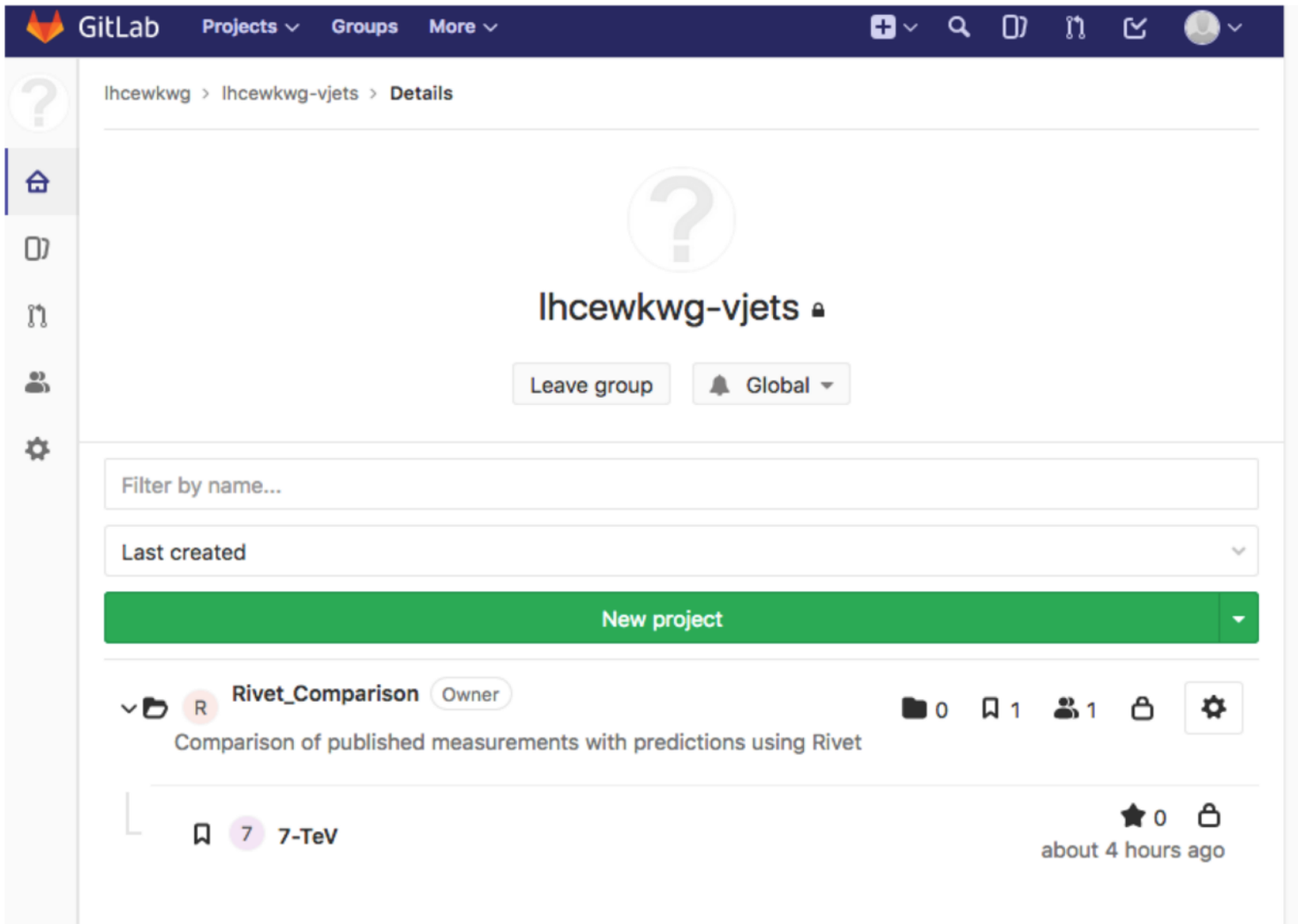
- Calculations:
  - consistent and complete QCD+EWK calculation for inclusive jet and V+jets
  - use of multi-jet + merged/matched PS predictions as compared to fixed-order times NP?
  - factorization of EWK correction
  - role of vector-bosons in pdfs at the TEV scale

- Theory uncertainties:
  - scale choice for inclusive jets, V+jets
  - other uncertainties ?

- Special topics:
  - survey of pT(V) (V=W/Z) at low pT for QCD resummation
  - impact of precision NNLO QCD + NLO EW for dijet measurements beyond PDF determination
  - cross sections and uncertainties for pT(V) (V=W/Z/gamma) (for large pT) and their ratios at NNLO QCD + NLO EW at fixed order and using PS matched calculations

GitLab repository

- GitLab repository: lhcewkwg-vjets
  - repository for all what we need in the WG
    - Store all tools for Rivet comparisons: yoda files, steering files etc



WG 2: Jets and EW bosons

- Goals:
  - common measurements – LHC x-sections
  - proper QCD and EW interpretation of precision measurements

- Next meetings: Friday, same time, end of May and middle June ?
  - complete set of Rivet comparisons, Jets and V+jets
  - steps to compare directly data – extrapolation to same phase space
  - proposals for common cov matrices in hepdata for use in Rivet/xFitter
  - and ?

- Preparation for next general EWWG meeting: June 21-22 2018 CERN

WG 2: Jets and EW bosons

- Further infos:
  - General Kick-off meeting 13-14. Dec 2017
  - Jets and EW bosons Twiki
  - Please subscribe to Email list

WG 2: Agenda for today

LHC-EW WG: Jets and EW bosons

Friday 4 May 2018, 15:00 → 17:10 Europe/Zurich

Videoconference Rooms V_jet_conveners_meeting — Join

15:00 → 15:10 **Intro** — 10m

15:10 → 15:20 **Comparison of inclusive jets: ATLAS, CMS** — 10m
Speaker: Marek Schoenherr (CERN)

15:20 → 15:21 **Comparison of V+jets: ATLAS, CMS, LHCb** — 1m

15:21 → 15:36 **Rivet and covariance matrices** — 15m
Speaker: Louie Dartmoor Corpe (University of London (GB))

15:40 → 15:55 **Uncertainties: theory** — 15m
Speaker: Alexander Yohei Huss (CERN)

16:00 → 16:15 **Jet energy scale uncertainty correlations between ATLAS and CMS** — 15m
Speaker: Steven Schramm (Universite de Geneve (CH))

16:20 → 16:35 **Covariance matrix definition: CMS** — 15m
Speaker: Paolo Gunnellini (University of Hamburg)

16:40 → 16:55 **Covariance matrix definition: LHCb** — 15m
Speaker: Stephen Farry (University of Liverpool (GB))