Workfest Planning: 5/4/18

- **R&D team** deliverables
  - Develop tools to evaluate reconstruction and data/MC matching
  - Tools to tune MC parameters
- **Validation team** deliverables
  - Validate performance of reconstruction/analysis tools with several benchmark tests
  - Automate tests for long term monitoring

R&D Team

- **Track/shower:**
  - Efficiency and resolution for data/MC comparison vs p, θ, ϕ
  - Tracking: Simon and Alex A.
  - Showers: Jon Z, Will M. and Ahmed
- **Kinematic fit:**
  - Compare data/MC χ^2 for many channels vs kinematic variables
  - Daniel, Alex B., Stuart, and Mike M.
- **Tuning of MC parameters and covariance matrices**
  - Sean, Thomas, Daniel

Validation Team

- **Cross sections** (compare to previous measurements)
  - ρ: Thomas (single run)
- **Recover branching ratios** (w/ efficiency correction)
  - ω: Mark (single run?)
  - η/η’: Tegan, Mahmoud (need ~20 runs?)
- **Event-by-event study benchmark channels**
  - J/ψ: Sean/Lubomir, Cascade/Λ(1520): ????
- **Angular dependent analysis (SDME or moments)**
  - Compare weighted MC from fit with data: Alex A, Alex B

Pre-requisites before Workfest

- **Baseline software stack**
  - Branch of sim-recon/hdds and associated version.xml
  - CCDB: choose fixed calib time, what about variations?
- **Well-defined data sample for studies**
  - ~20 runs from 2017 LI with good calibration
  - Pin EVIO to cache disk for next ~3 weeks
  - Produce REST and TTrees with baseline software (how long?)
- **Simulation samples (use a single run for simplicity?)**
  - Signal MC for ~10 channels used in many studies (see last slide)
  - 100 M bggen events for inclusive studies

Requirements during Workfest

- **Coffee!**
- **Data re-processing**
  - Tools for re-processing a run's worth of data with updated branch
  - Updated analysis launches over baseline REST data
- **Additional simulation samples**
  - During 3 pm discussions collect requests for additional simulation samples or additional statistics. Process by next morning on OSG.
- **What else?**

Signal simulation samples (10 M events)

- **γp → γγp:** η BR, KinFit
- **γp → π^0γp:** ω BR, KinFit
- **γp → $\pi^+\pi^-$p:** tracking effic., KinFit, cross section, ρ SDME
- **γp → $\pi^+\pi^-\pi^0$p:** tracking/shower effic., KinFit, cross section?, η/ω BR, ω SDME
- **γp → $\pi^+\pi^-$ηp:** η’ BR, KinFit
- **γp → $\pi^0\pi^0$ηp:** η’ BR, KinFit
- **γp → $\pi^+\pi^-\pi^+\pi^-$p:** tracking effic.
- **γp → $\pi^+\pi^-\pi^0\pi^0$p:** shower effic.
- **γp → K^+K^-p:** KinFit, ϕ SDME, cross section?