Mock Data Challenge: what analysis to include?

- overall goals
  - connectivity test
  - raw data through subsystem code
    - exercise rudimentary monitoring code
  - calibration
  - pattern recognition and particle ID
  - integrate different subsystems into physics-related quantities

- connects to day-1 analysis in last two steps
  - analysis pushes the software integration

Day-1 physics goals

physics	electrons	hadrons	photons	muons	spin
multiplicity		X			
Et		X	X		
inclusive photons & pi-zero			X		
charged hadrons spectra, HBT		X			
phi -> KK	(X)	X			
single leptons (charm)	X			X	
J/psi				X	

software for physics A

- MVD reconstruction
  - total multiplicity, multiplicity distributions
- for photons and neutral pions add
  - EMCAL reconstruction
  - PC for charge rejection, connect to EMCAL clusters
  - select events on MVD multiplicity
- for hadrons
  - track reconstruction with all tracking systems
  - global tracking including TOF
  - time-of-flight measurement
    - includes BB start time
  - event selection (as for photons)
- calibrate nearly ALL central arm subsystems!

software for physics B

- for ϕ
  - TOF identified K - same as for hadrons
  - EMCAL cluster - track match
  - EMCAL time of flight
- for single leptons
  - central arm track + EMCAL match
  - central arm track + RICH match
  - muon track reconstruction
  - muon track - ID match
- for J/ψ
  - muon track reconstruction
  - muon track - ID match
- ALL use event selection
  - should be MVD as MVD will provide central trigger

Resulting (ordered) software list

- MVD calibration, reconstruction
- EMCAL calibration, cluster finding
  - then match to PC cluster
  - neutral pion reconstruction in EMCAL
- calibration of tracking elements
- central arm track reconstruction
  - global tracking/match to TOF
- TOF calibration and
  - PID by time of flight using TOF+BB
- found track - EMCAL cluster match
- EMCAL time-of-flight (with calibration)
- found track - RICH match
  - track finding using EMCAL cluster seed?
- muon arm track calibration & reconstruction
- muon ID calibration, track match, muon ID

Mock Data Challenge & analysis

- analysis is part of the challenge
- need to bury signals in background events
  - prove in MDC we can get that far
  - write software that can find them
  - use for analysis software Q/A
- aim for “easter egg hunt” (after MDC?)