

2019 Data Analysis Plans

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pre-summer 2020 — Jeopardy

- my take: need to be able to make a justifiable reach estimate for 2019 data using the conditions we had...this won't be the final word
- preliminaries:
 - good-runs list (to get total lumi)
 - SVT/ECal calibrations & bad channels
 - first pass at track-based* alignment
 - functioning MC gen & readout
 - reasonable tracking strategies
- ingredients:
 - A' MC (prompt and displaced) at various masses
 - mass resolution & acceptance
 - some wab-beam-tri MC
 - check rates and shapes
 - radiative trident MC
 - for radiative fraction
 - ~large tritrig MC sample & some data processed
 - vertex resolution/verification...not enough to fully explore the tails
 - need to make some assumptions on long tails; use 2016 analysis to guide us; vary assumptions reasonably

- verifications & validation:
 - backgrounds for V0's w/o electron-cluster match
 - track efficiency (fold into MC)
 - track (d_0/z_0) & vertex resolutions
 - momentum resolution (FEE)
 - propagate data/MC discrepancy to mass resolution
 - trident & WAB rates
 - all other data/MC comparisons
- it would be great to get improvements to tracking into this...depends on timescale

- pretty much same as for jeopardy but MORE
 - full, perfect track-based alignment
 - accurate accounting of “good” luminosity
 - run-based conditions in database AND MC generated as appropriately with these conditions
 - improved tracking for speed, accuracy and precision
 - something, something set mass scale and resolution from data
 - these are all big jobs.....
- analysis improvements (possibly)
 - MVA for vertexing (possibly expanding on MattS work)
 - BH/RAD kinematic weighting (possibly in MVA)
 - etc etc

Key questions re: 2019 analysis

- Who? It would be good to get this solidified now and get things started (under the preliminaries) now
- What is a reasonable timescale?
 - the jeopardy push probably helps us here...gives us a kick in the pants
 - fear is that this will run into the (maybe) 2021 run preparations... we should probably aim for early 2021 but I fear that is aggressive!
 - maybe aim for preliminary results for winter 2021 conferences?
- Publication strategy:
 - depending on what we do for 2016 of course
 - vertexing should probably be a PRL
 - bump-hunt+detector performance (e.g. vertexing support) details in PRD
 - SIMPs → general displaced vertex search in another PRD