

2016 Data Analysis Summary and Publication Status

Matt Graham

SLAC National Accelerator Laboratory

May 13, 2020

Brief timeline since Jan2020

- Jan 13: RCs formed for BH and vertexing
 - Rafo/MattS had been doing lots of work, we thought they could us RCs to guide them
- Jan 20-22: workshop focusing on 2016 analysis
 - Lots of discussion on radiative fraction (got resolved a few weeks later)
 - Need to redo radiative MC to get truth info (we had this for 2015 but lost?)
 - L1 inefficiency messes with normalization if requiring L1...need some sort of MC adjustment (my dumb hit killing for now)
 - Mass resolution between data/MC is bad, worse than 2015 → smear the MC
 - Detailed discussion of individual cuts and cut philosophy
 - Documentation was way behind...need to pick it up!
- Mid/Late-Feb: First drafts of notes available; just selections...RC meetings begin
- March-April: Grinding/meeting/grinding ...
- May: things are coming together!
 - BH gets permission to unblind on May 11...where's the result???
 - Vertexing will unblind just L1L1 soonish; L1L2 will follow (L1 inefficiency hurts bad)

Review Committees

- Review committees established Jan 13 by decree of EC
 - vertexing analysis, lead by Matt Solt, the committee members are Cameron Bravo, Tongtong Cao, Andrea Celentano (chair).
 - resonance search analysis, lead Rafayel Paremuzyan, the committee members Keith Griffioen, Pierfrancesco Butti, Robert Johnson (chair)
- The interaction with RC has been **extremely** useful
 - Both groups have had ~weekly back and forth (meetings/email comments)
 - They are basically members of the analysis team at this point...thanks to all of them
- After unblinding, their jobs are not done!
 - Finalizing results → systematics, presentation

- We've settled on going for a long, detailed PRD with both BH and vertex analyses
 - We want this to be a good reference document for future analysis papers
 - We will likely not have any new (non-excluded) reach so want to sell this as a demonstration that the detector works as expected and that with more data we will be able to explore interesting areas
- Writing committee formed April 22
 - Pierfrancesco Butti, Rouven Essig, Matt Graham (chair), John Jaros, Omar Moreno, Rafayel Paremuzyan
 - I put John here even though he denies he's on it
 - We've met once already and done a rough outline and apportionment of sections
 - Overleaf document set up by Omar (<https://www.overleaf.com/project/5eb049b901a4c80001856d1c>)
 - No content yet! Need to get moving...

SIMPS!!!

- Our first analysis with actual new reach may be the SIMP analysis (even with 2016 data)...Stani just showed her nice progress on this
- We should definitely push this
- Target journal? Maybe PRL, but definitely for PRD-RC

