Review Committee report

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On behalf of the Review Committee:
Marc Grabalosa (chair), **David Ward** (EB)

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Analysis details

- **Analysis:** Neural-network-based same side kaon tagging algorithm calibrated with $B_s^0 \to D^- \pi^+$ and $B_s^{0**}(5840) \to B^+ K^-$ decays

- **Contact authors**: Mirco Dorigo, Stephanie Hansmann-Menzemer, Marcello Rotondo.

- **WG Aproval**: 18-Jun-2015

- **Data set**: 3 fb^{-1}

- **Twiki**: https://twiki.cern.ch/twiki/bin/view/LHCbPhysics/NNetKaonTaggers

A bit statistics:

- The paper consists of two analysis notes: `LHCb-ANA-2014-003` and `LHCb-ANA-2014-089`.

- There have been 4 versions of the first one and 5 of the second one.

Motivation

- Tagging at a hadron collider is far more challenging then in B-factories.

- Analysis aims at developing a NN algorithm that can be used to determine the flavour of a B meson.

- Analysis exploits both Same Side (SS) and Opposite Side (OS) taggers.
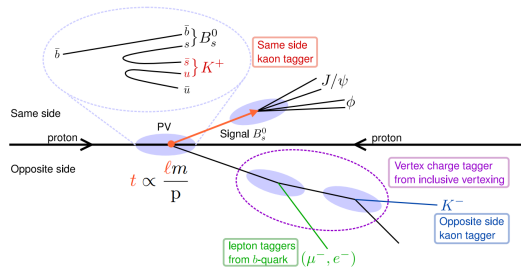
- Analysis in very good shape!
- Additional cross-checks suggested:
  - Comparison 2011 vs 2012
  - Side-bands comparison.
  - Used bootstraps to check sFit errors.
- We appreciate that the analysis used two methods from the begging which are completely consistent.
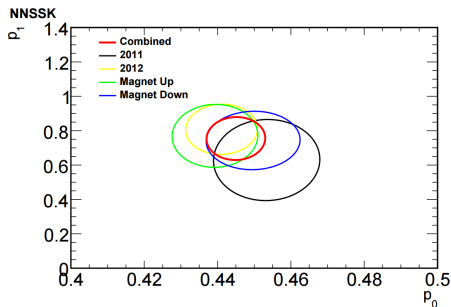
- Analysis mostly relied on Sfit.
- Proponents did not want to cross check sFit against cFit arguing that the cross check was performed last year.
- In addition the results were cross checked with the bootstrap technique and found to be in perfect agreement.

Conclusions

- We recommend that analysis is approved to go to paper.
- Thanks to the proponents for an interesting and productive review

Backup