

Results and Prospects in Rare and Semi-leptonic decays

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GAMBIT

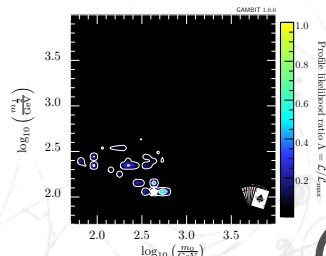
N.Serra, M.Chrzaszcz

The Global And Modular BSM Inference Tool (GAMBIT):



- We were responsible for all Flavour likelihoods \implies convenor ship.
- 8 papers are almost written!
- We have a new addition to Flavour group: Florian Bernlochner
 - Scalar singlet
 - CMSSM.
 - MSSM7.
- Adding Danny's EOS to GAMBIT software to replace Super(FUCKING)Iso.
- Becoming a leader in

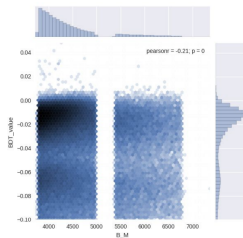
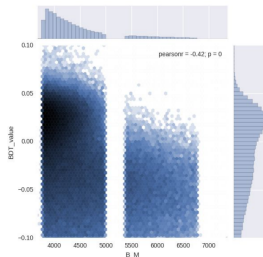
Killed CMSSM:



$B \rightarrow K\ell\mu$

N.Serra, M.Chrzaszcz, M.Pikes, K.Schubert, F.Polci

- New Physics responsible for $B \rightarrow K^*\mu\mu$ anomaly can be LFV.
- We can study the easiest $B \rightarrow K\ell\ell'$.
- Challenges:
 - L0 Trigger efficiency control
 - Mass calibration.
 - 2 BDT will be used \Rightarrow need to really well control the correlations!



- The L0 is a mess.
- With YANDEX we have an idea on permanent solution to the L0 trigger efficiency determination.
- We can use NeuraNet for the pattern recognition in the calorimeter clusters.
- In this way the L0 efficiency is calculated using the full calorimeter information no only the given track which we suspect is the leading source of bias.
- Run 2 data will be included.

Run2 analysis: Majorana neutrino

M. Chrzaszcz + ?

- Shelly managed very efficiently to fuck up the $B \rightarrow \pi\mu^-\mu^-$ results:
 - Neutrinos interact with detector :)))))) \Leftarrow love it!
 - The $V_{\mu,4}$ is wrongly calculated.
 - The limits are shit.
- The problem is that LNV at level that LHCb can see is excluded because of small neutrino masses.
- The only way that LHCb can avoid this constrain is to look at different channel: $B \rightarrow \pi\mu^-e^+$. In this scenario we have LFV not LNU so we avoid the constrain and we really exclude a interesting parameters space.

Theory

Danny + Rafael + Marcin +

- Angular observables in $B \rightarrow D^* l \nu$ and $\Lambda_b \rightarrow \Lambda_c l \nu$.
- $R(\Lambda_c^*)$ prediction.
- Bias factor for the $B \rightarrow K^* \mu \mu$ Silvestrini factorization.
- Unbinned WC fit to data of $b \rightarrow s l l$

