News and plans

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Mjj meeting
(August 18, 2011)

Plan for moving forward

✦ <u>Target:</u> complete analysis with 2 fb^{-1} data sample

✦ <u>Time line:</u> presentation of complete result at Brussels CMS week

- We have made good progress and should keep the momentum going so that the analysis goes to publication with a definitive answer.
- We plan to have a dedicated Mjj session at Brussels.
- Review of Mjj analysis with presentations from everyone contributing to 2 fb^{-1} result.

So, we have ~ 3.5 weeks to reload with additional data and planned improvements listed on the next slide.

Some ideas for improvements

1. Re-weight LO W+jets shape to NLO. This can be achieved by reweighting Mjj distribution from Madgraph/Sherpa/Alpgen by the ratio NLO/LO bin-by-bin. The ratio can be obtained from MCFM. Also do same for diboson. This will reduce systematics due to choice of q2 scale.

2. Compare Mjj shape for W+jets events from Madgraph, Sherpa, and Alpgen. This way we would have tried all three full-simulation LO MC samples. We can also overlay shape from data-driven technique (see next bullet). The envelope of all these will constitute systematics in W+jets shape.

3. Estimate W+jets shape from data "mixed events" by tuning the dR(j, j) distribution (a la Dan) for cross check.

4. Include events with one extra jet. We have verified that the S/B is slightly better, resolution is not much worse, and we gain about 20−30% more signal.

5. Incorporate/improve the effect of jet resolution difference between data/MC.

6. Analyze Mjj distribution in Z+2jet data.

BACKUP SLIDES