

Slew Rate fix

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Fixing the slew rate issue

Emanuele has provided a fix to the multifit local reco for the slew rate effect in emanuele:multifit_gainswitch_maxsample_8024

A re-reco with ECALELF has been performed including this PR

In order to validate the fix, we used the *smearing method* to evaluate scale shifts for electrons in bins of seedEnergy

We used 2 sets of DoubleEG reconstructed with and w/o this fix

Cal_Jan2017_ref: this is the reference rereco, using mustache SC regression

Cal_Jan2017_multifitMaxSample: this is the rereco with the fix

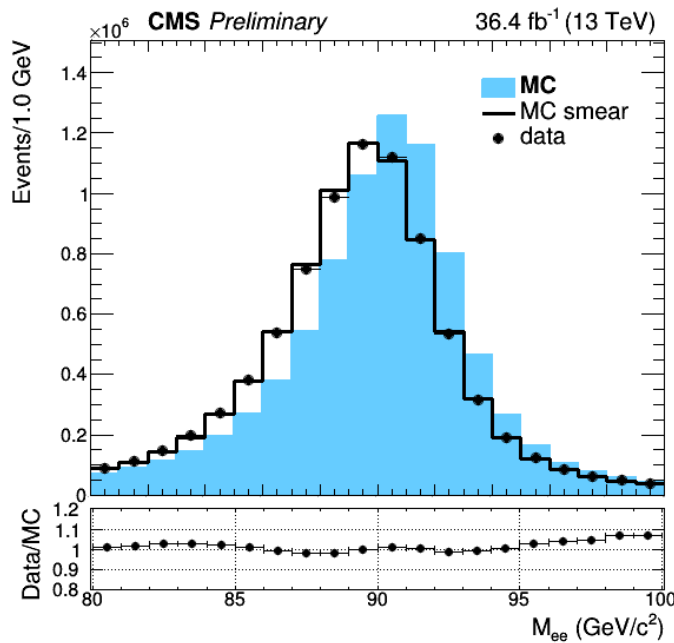
No scale/smearing corrections are pre-applied to data, so what matters is the relative difference between the two scenarios with and w/o the slew rate (SR) fix

Mass spectra w/o SR fix

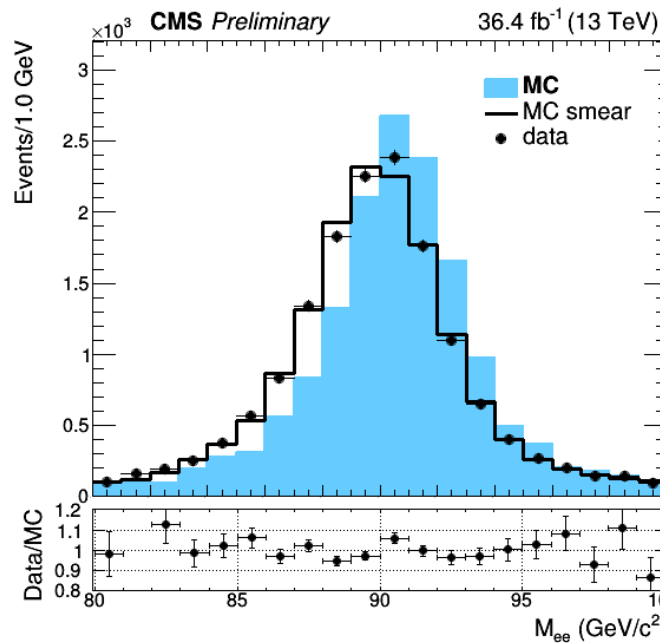
Mass spectra in bins of seed energy (basically how we spot the problem)

- One leg is always at 0-150 GeV
- The other leg is either [0,150], [150,300] or >300 GeV
- Barrel-only

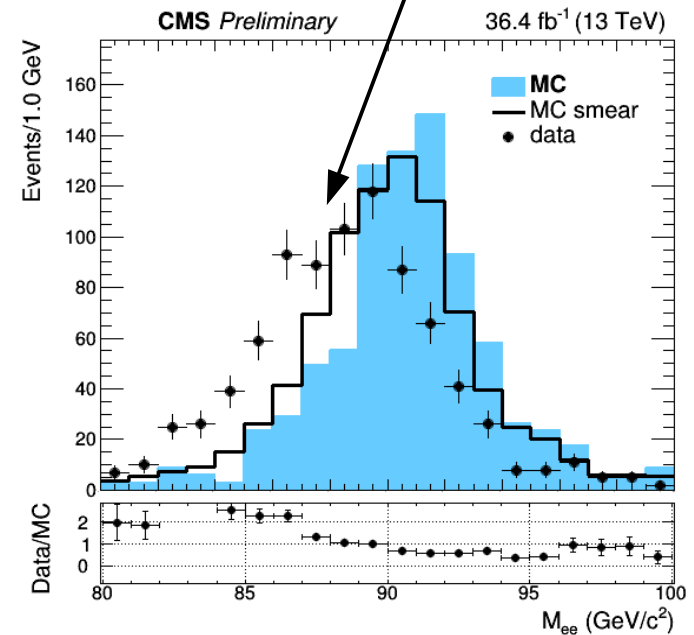
This is the infamous 4-5% data-MC shift



Both legs [0,150] GeV



One leg [150,300] GeV



One leg > 300 GeV

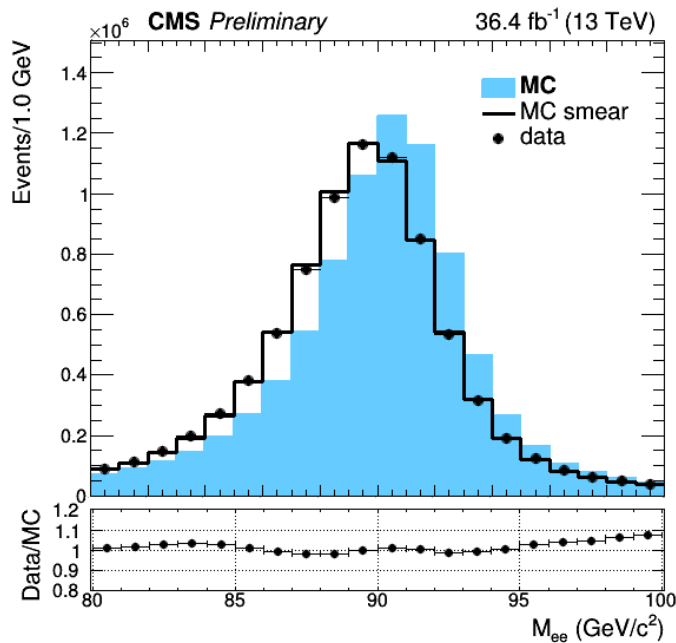
- NOTE: We were only interested to check the effectiveness of the SR fix, so the likelihood fits were not tweaked (basically “ignore” the black solid line) “MC smear”

Mass spectra with SR fix

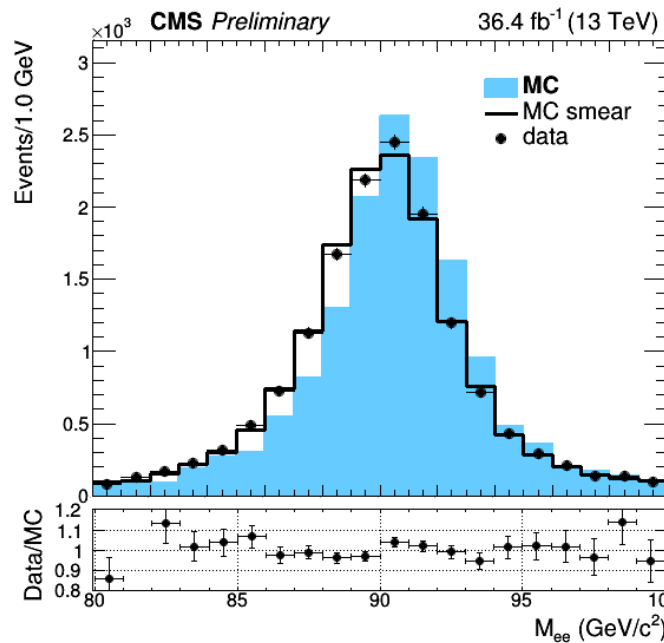
Mass spectra in bins of seed energy (basically how we spot the problem)

- One leg is always at 0-150 GeV
- The other leg is either [0,150], [150,300] or >300 GeV
- Barrel-only

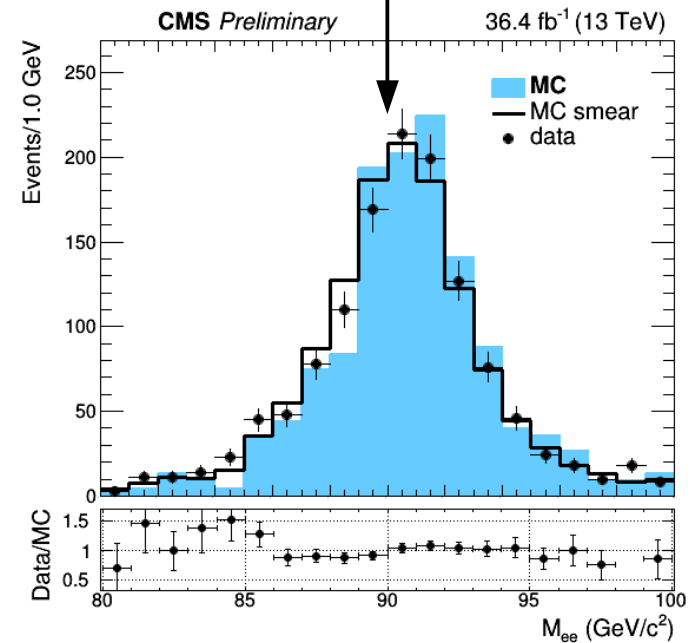
The data-MC shift is clearly reduced



Both legs [0,150] GeV



One leg [150,300] GeV



One leg > 300 GeV

- NOTE: We were only interested to check the effectiveness of the SR fix, so the likelihood fits were not tweaked (basically “ignore” the black solid line) “MC smear”