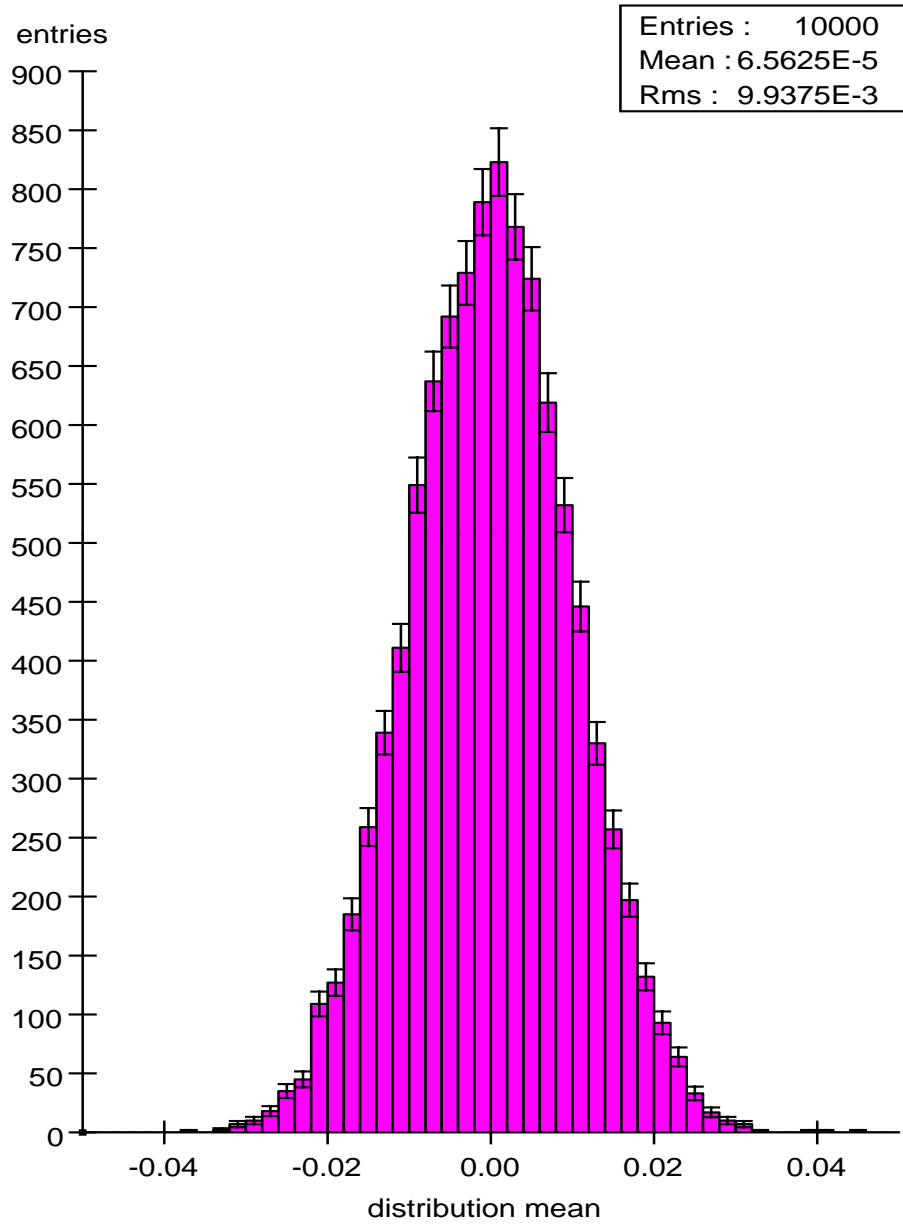


RMS vs RMS90

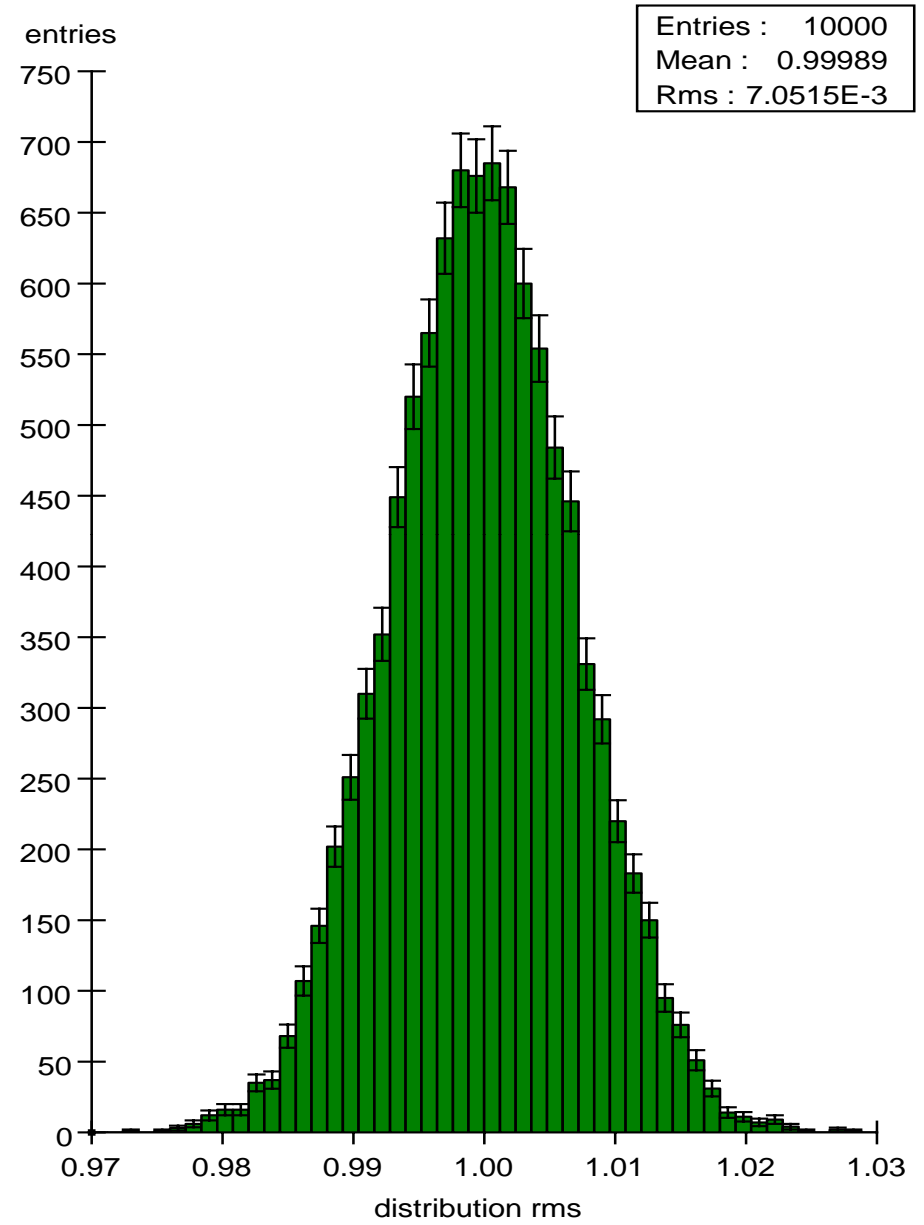
Gaussian distributions

- Generate 10000 gaussian distributions, each with 10000 entries.
- Plot mean, mean90, rms and rms90

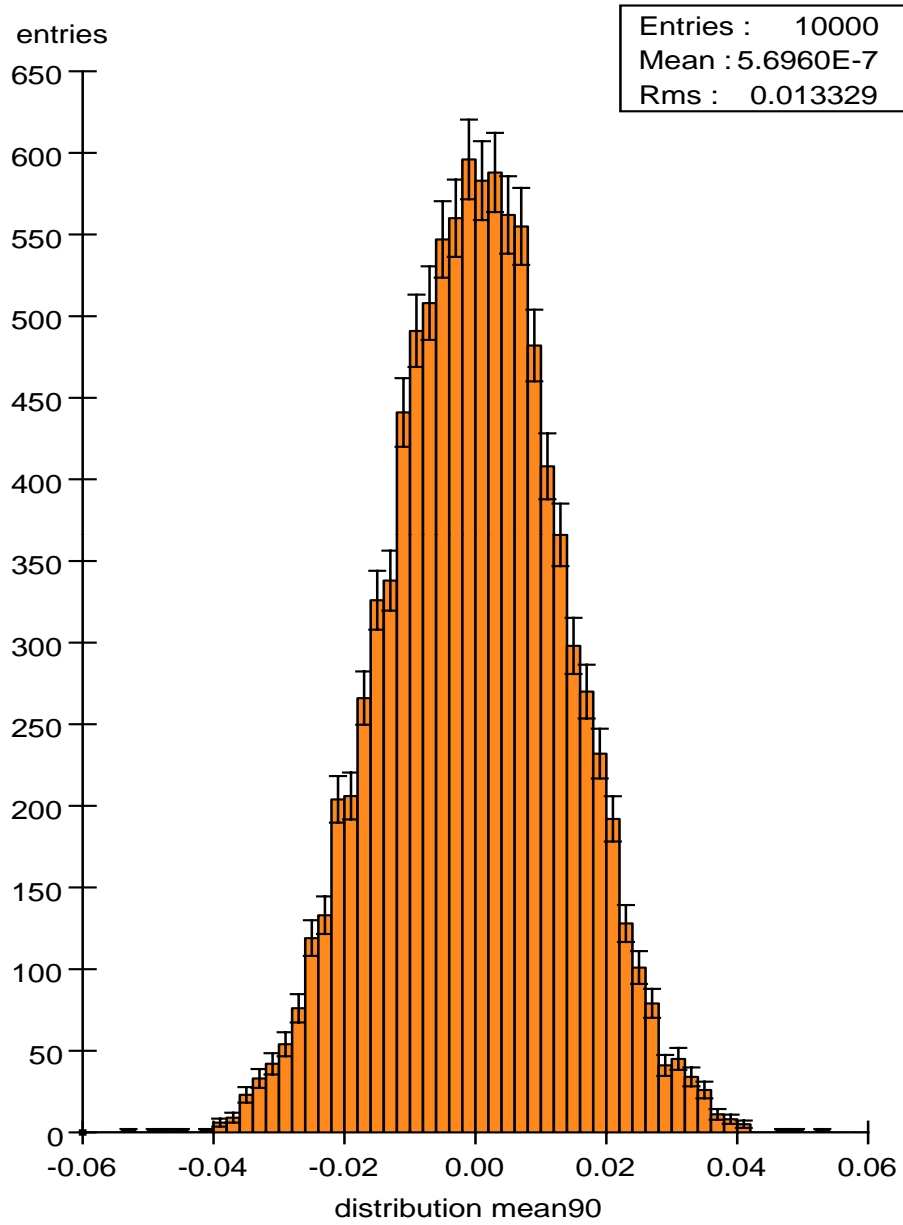
Mean



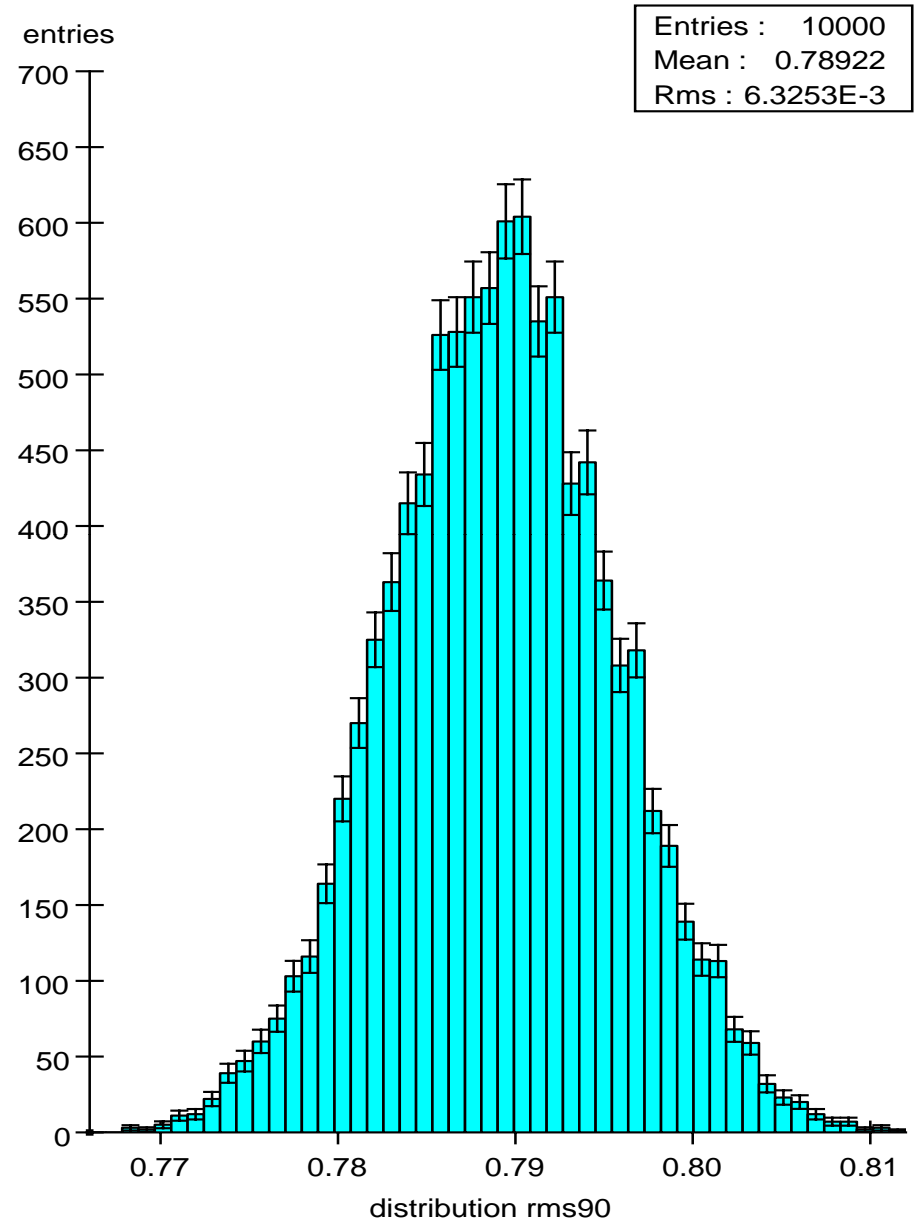
RMS



Mean90



RMS90

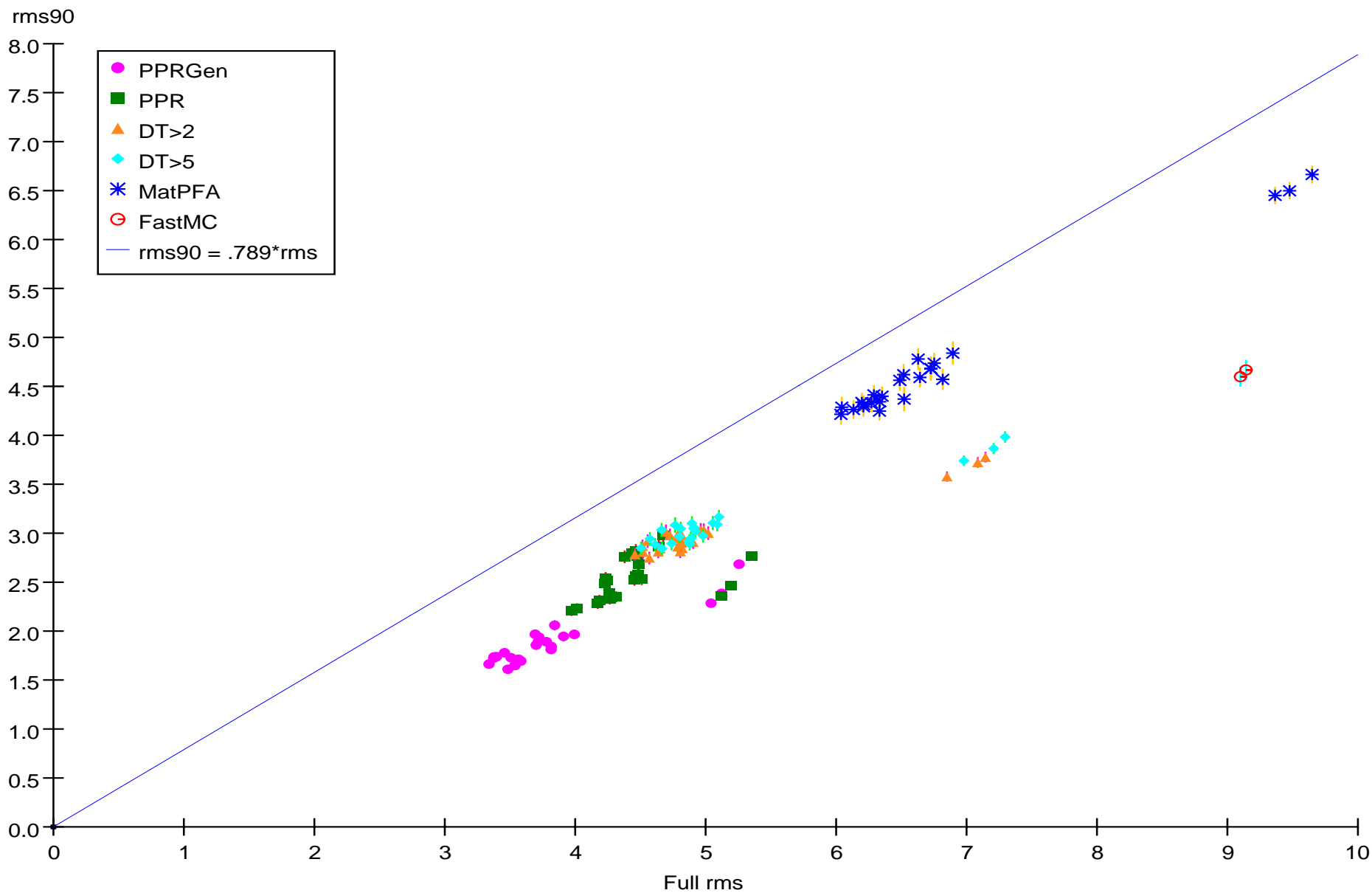


Features

- Mean and rms of distributions as expected: generated correctly
- Mean90 distribution larger error than I expected
- $Rms90 = .789 * rms$

- Compare rms and rms90 in the Zmass residual plots using ZZ->nunuqq events at 500 GeV for various reconstructions

ZZ->qqnunu 500GeV: delta Mass: rms90 vs rms



Comments

- Rms90 is used to compare distributions without large non-gaussian tails dominating.
- Rms90 is NOT and was never intended to be the resolution.
- If you want to eliminate the effect of the long tails and quote a resolution, $\text{rms90} * 1.25$ is a reasonable estimate.