

**Angular Dispersion with BT Gamma data  
(v1r030604p6) Vs incoming beam direction**

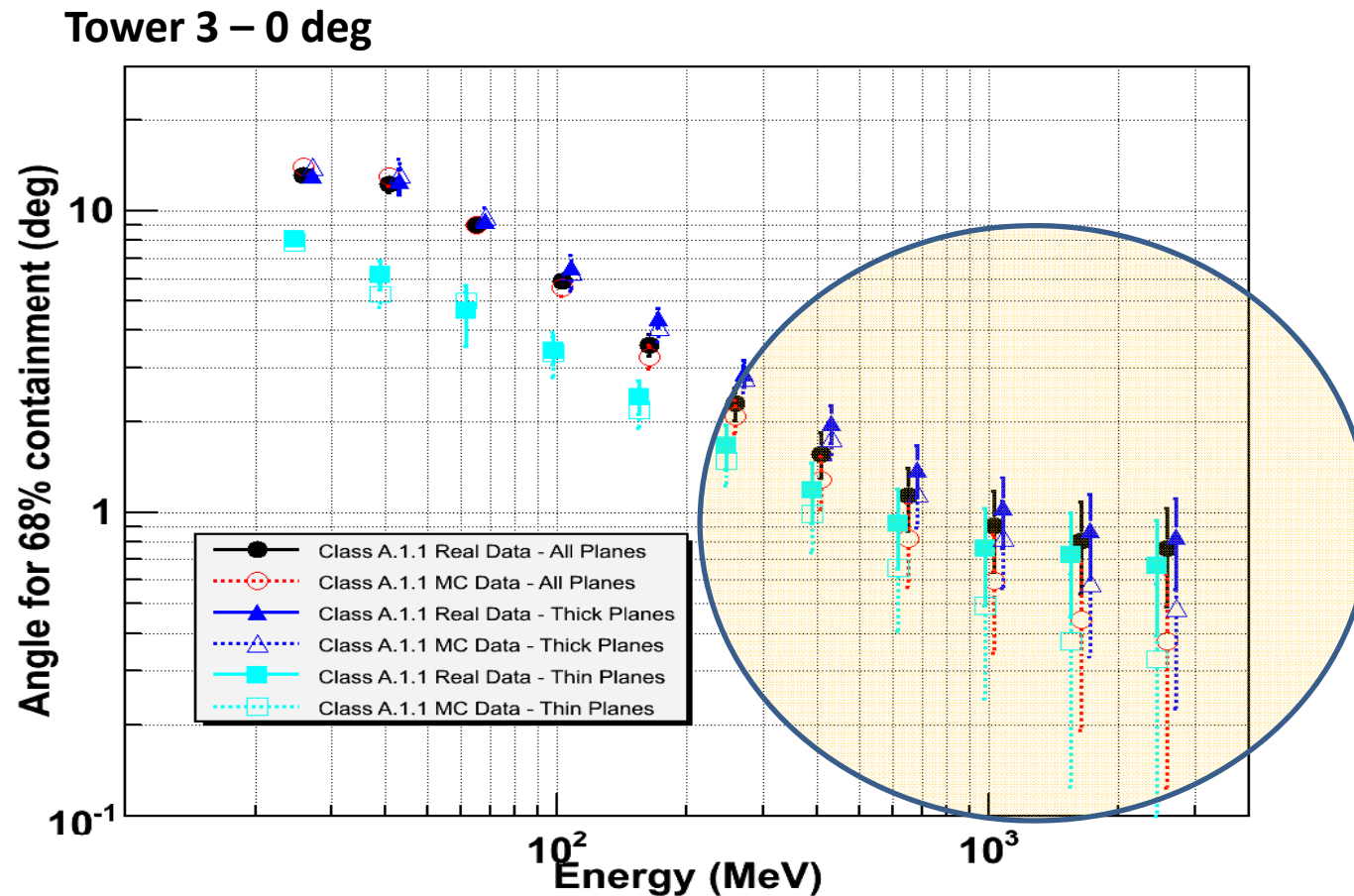
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# Introduction

- The PSF is evaluated with respect to the nominal electron beam direction
- In real data, the angular resolution slope changes at high energy, probably due to a misalignment between the CU and the incoming beam direction



# CU-Beam Alignment

The alignment is performed by a scanning procedure starting from the nominal incoming beam direction

$$\left( \varphi_{beam}^{nominal}, \mathcal{G}_{beam}^{nominal} \right)$$



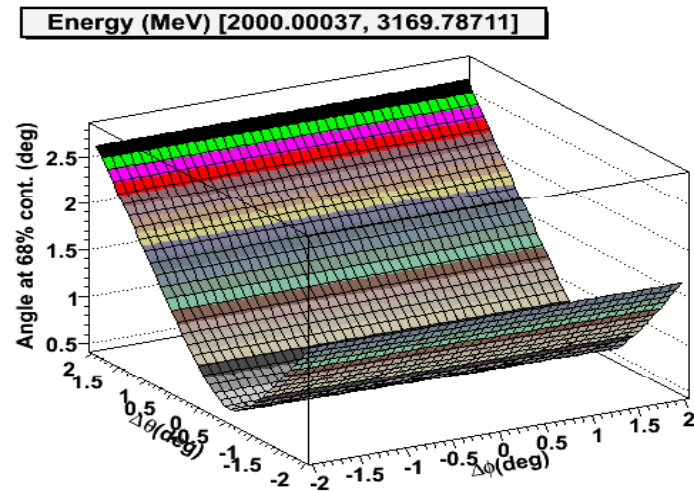
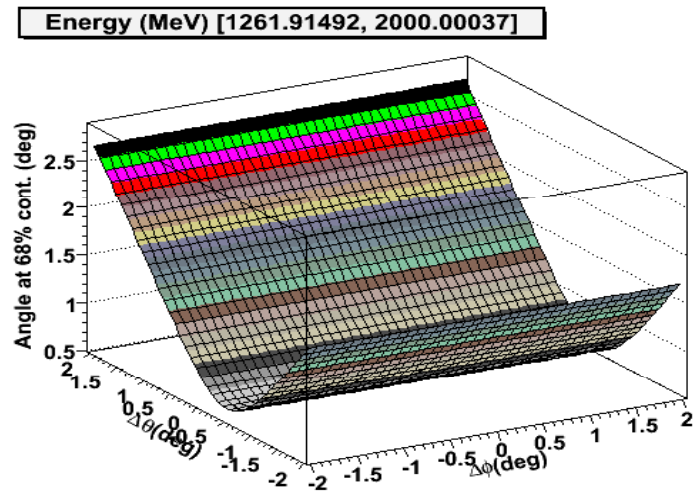
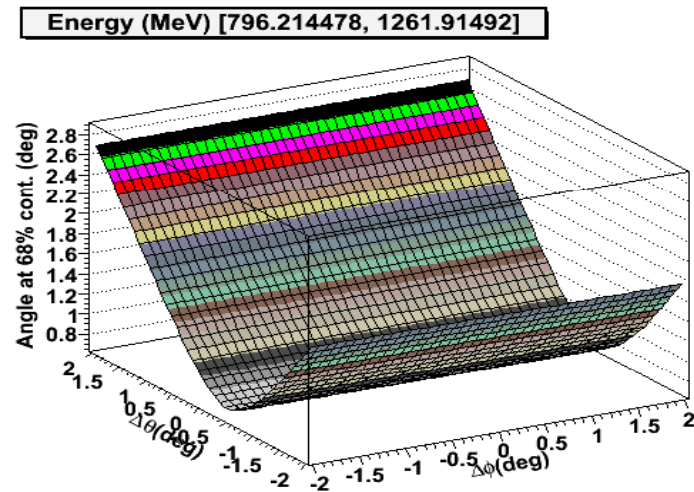
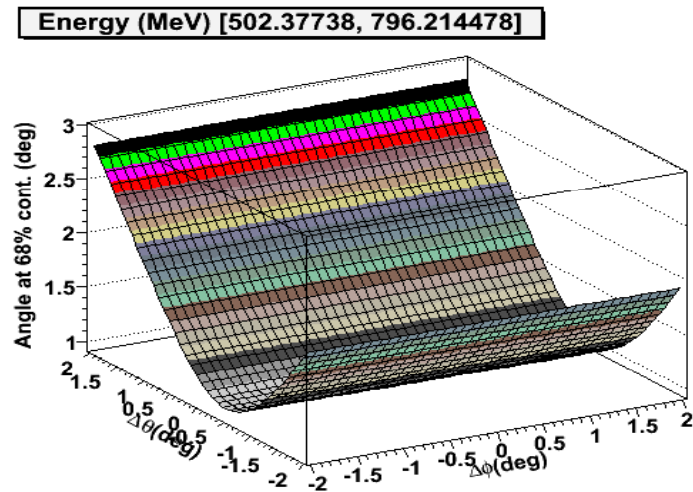
$$\left( \varphi_{beam}^{nominal} + \Delta\varphi, \mathcal{G}_{beam}^{nominal} + \Delta\mathcal{G} \right)$$

where

$$\Delta\varphi = \Delta\mathcal{G} = -2^\circ + Nstep * 0.1$$

**Nstep = 0, 1, ....., 40**

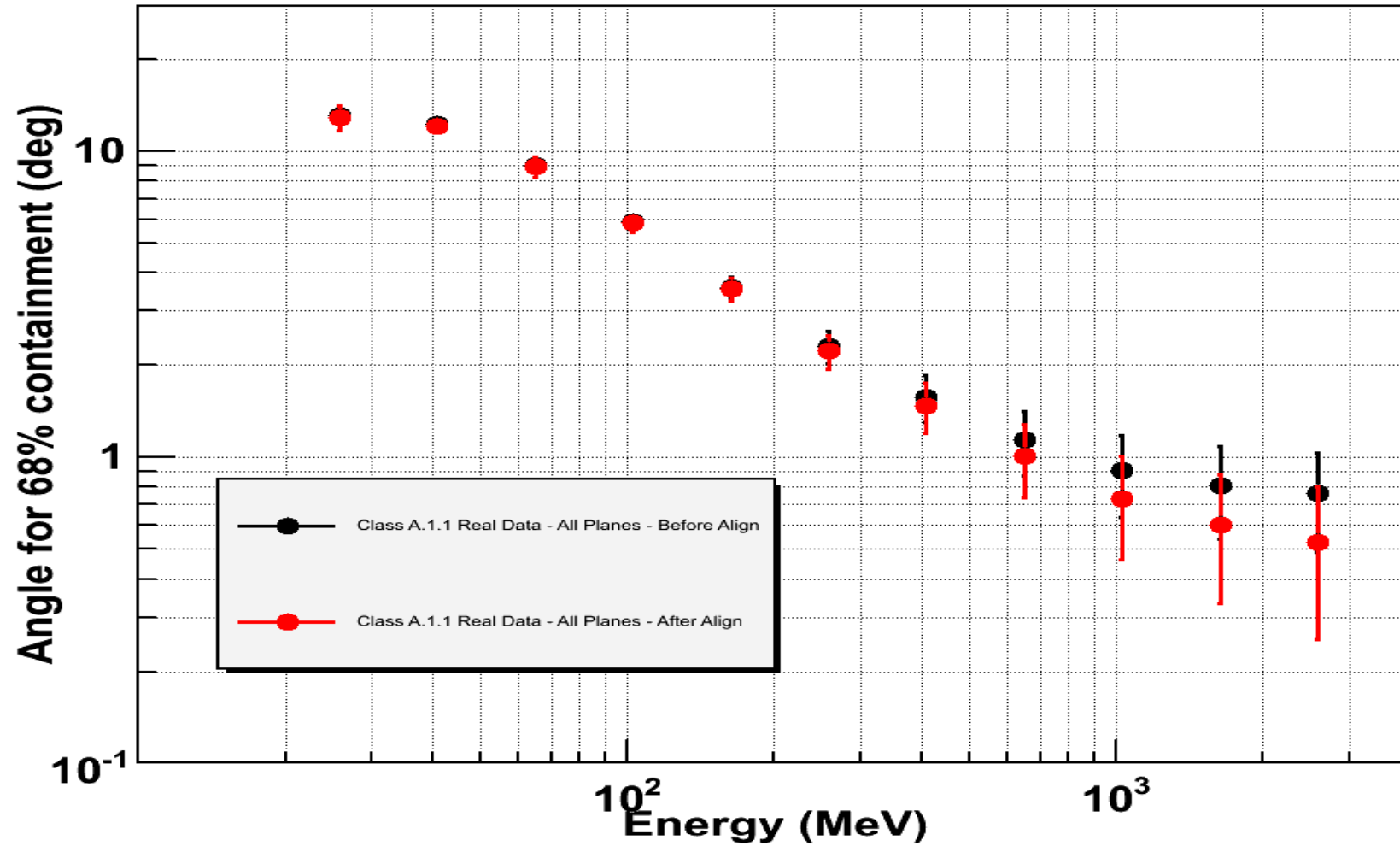
# Tower 3 – 0 deg, scanning



The minimum is found at  $\Delta\phi=0^\circ$  and  $\Delta\theta=-0.5^\circ$

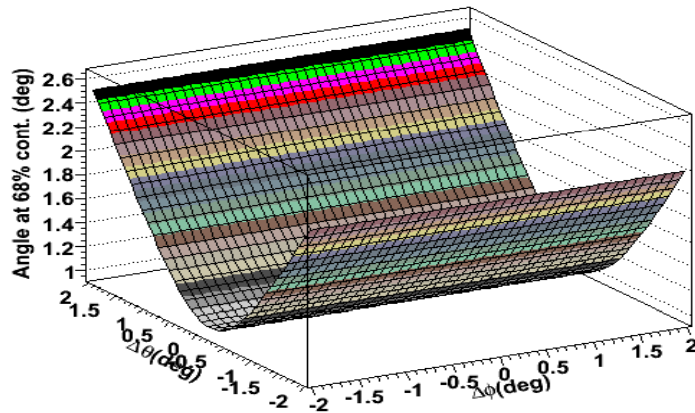
# FB Tower 3 – 0 deg

Tower 3 - Real Data Angular Resolution Vs. Reconstructed Energy at Normal Incidence (2.5 GeV Electron beam)

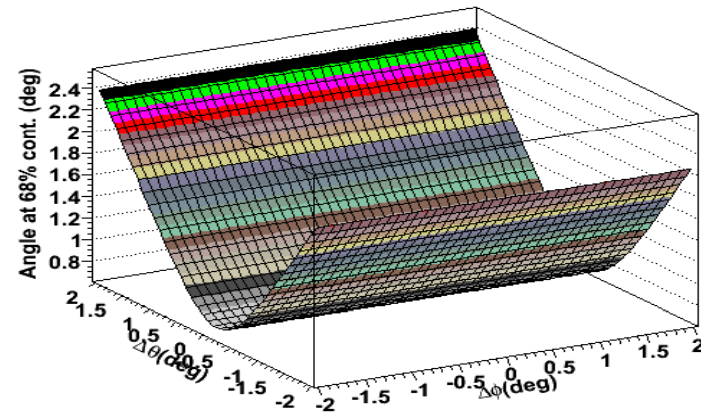


# FB Tower 2 – 0 deg, scanning

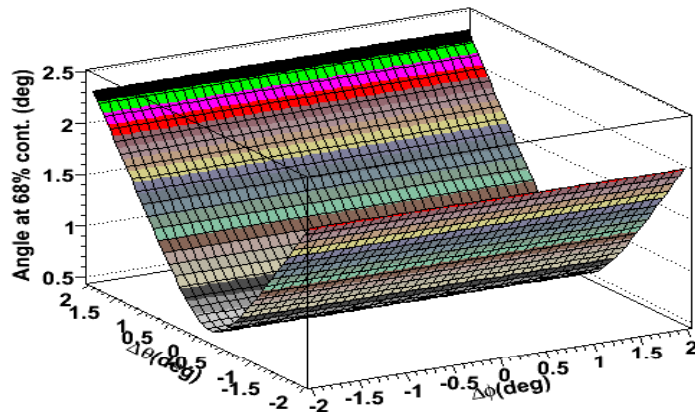
Energy (MeV) [502.37738, 796.214478]



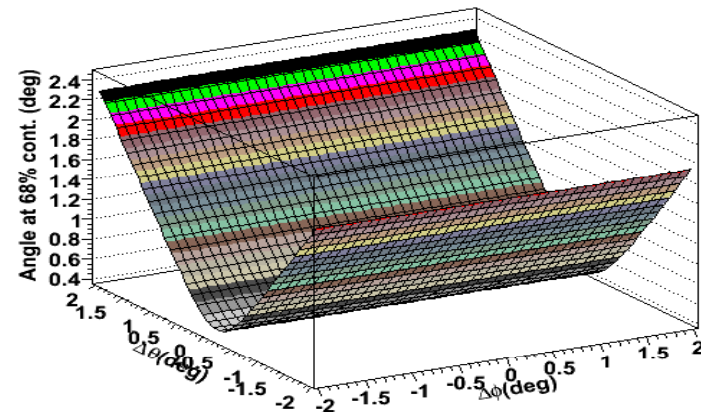
Energy (MeV) [796.214478, 1261.91492]



Energy (MeV) [1261.91492, 2000.00037]



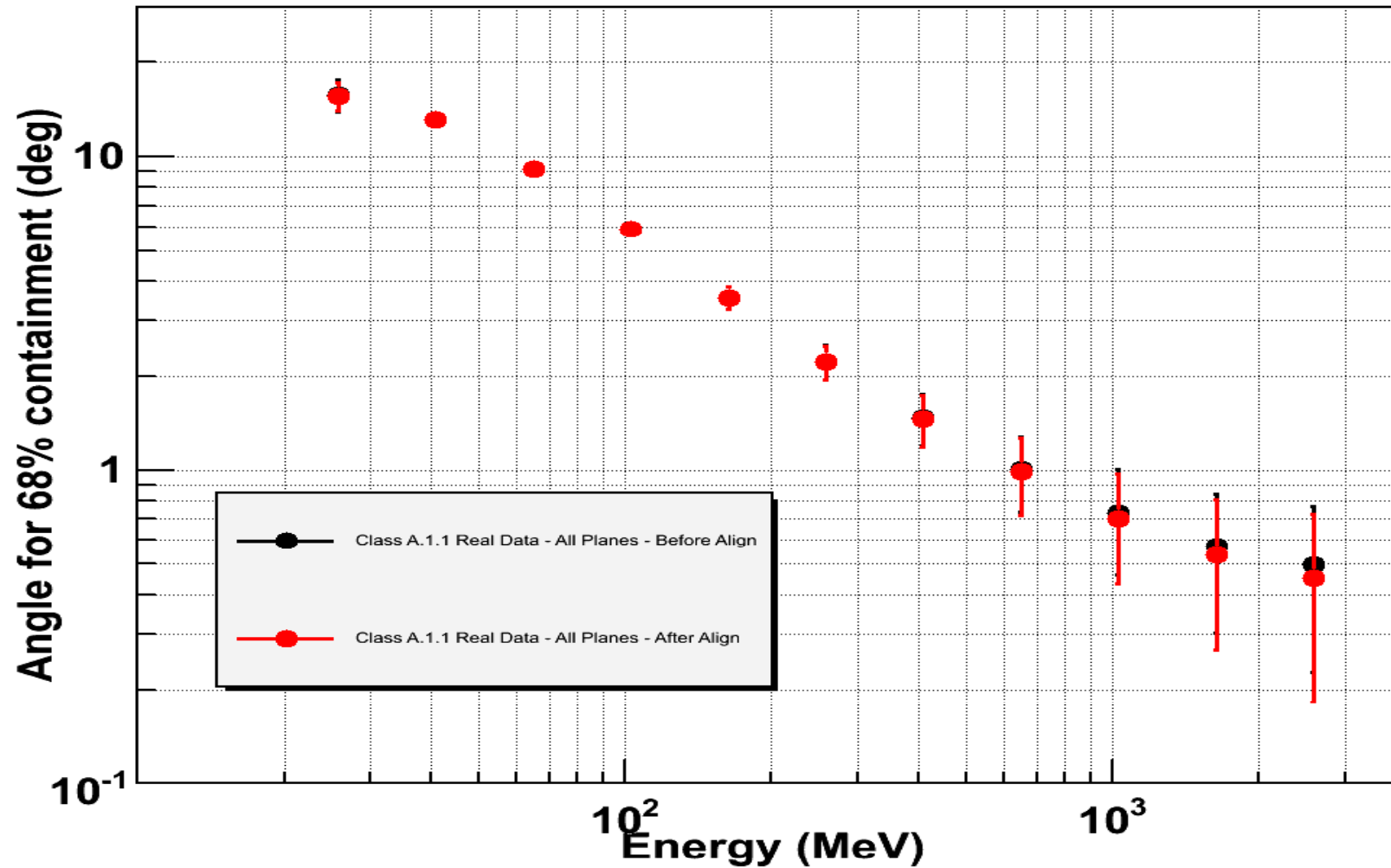
Energy (MeV) [2000.00037, 3169.78711]



The minimum is found at  $\Delta\phi=0^\circ$  and  $\Delta\theta=-0.2^\circ$

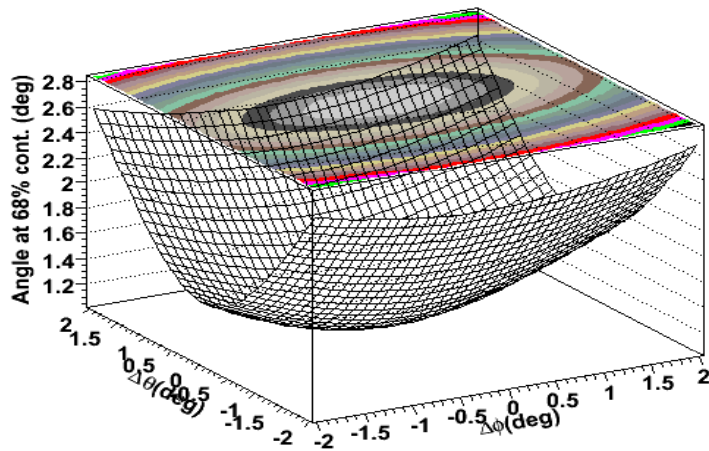
# FB Tower 2 – 0 deg

Tower 2 - Real Data Angular Resolution Vs. Reconstructed Energy at Normal Incidence (2.5 GeV Electron beam)

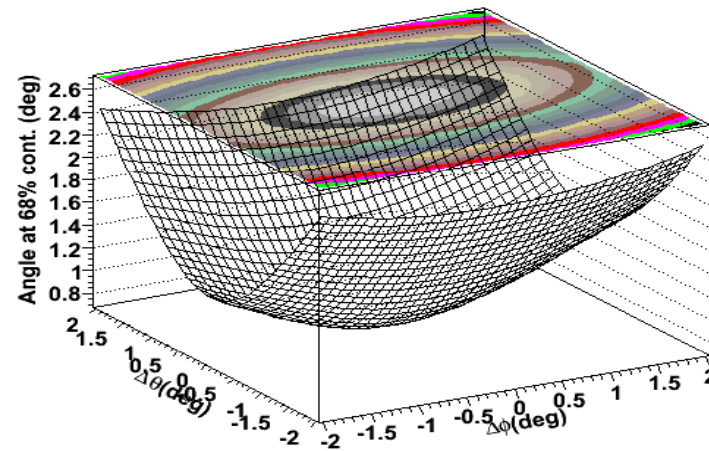


# FB – 30 deg, scanning

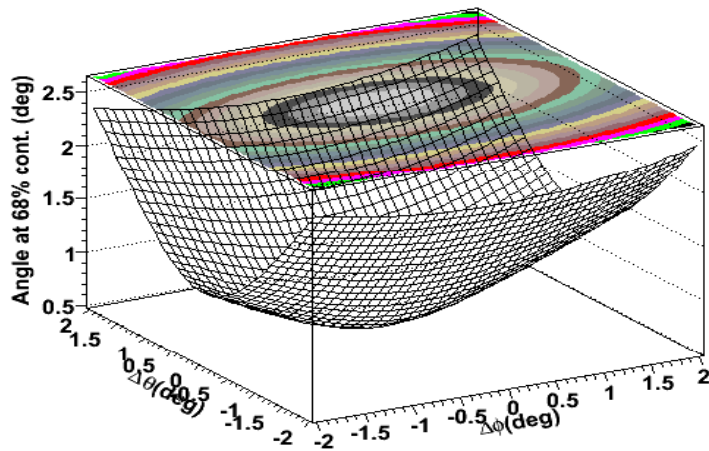
Energy (MeV) [502.37738, 796.214478]



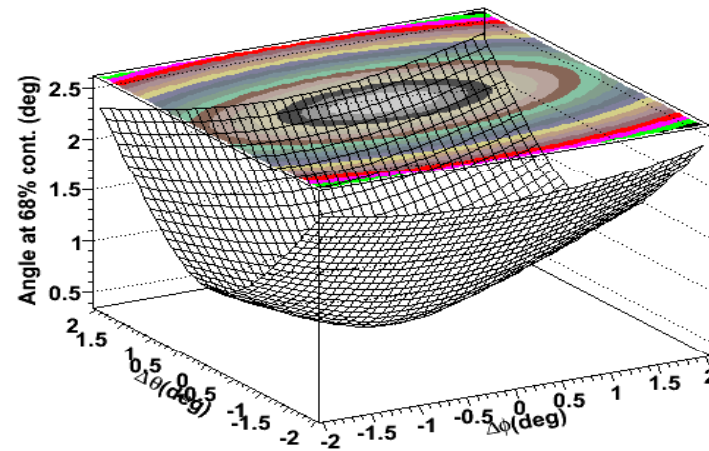
Energy (MeV) [796.214478, 1261.91492]



Energy (MeV) [1261.91492, 2000.00037]



Energy (MeV) [2000.00037, 3169.78711]

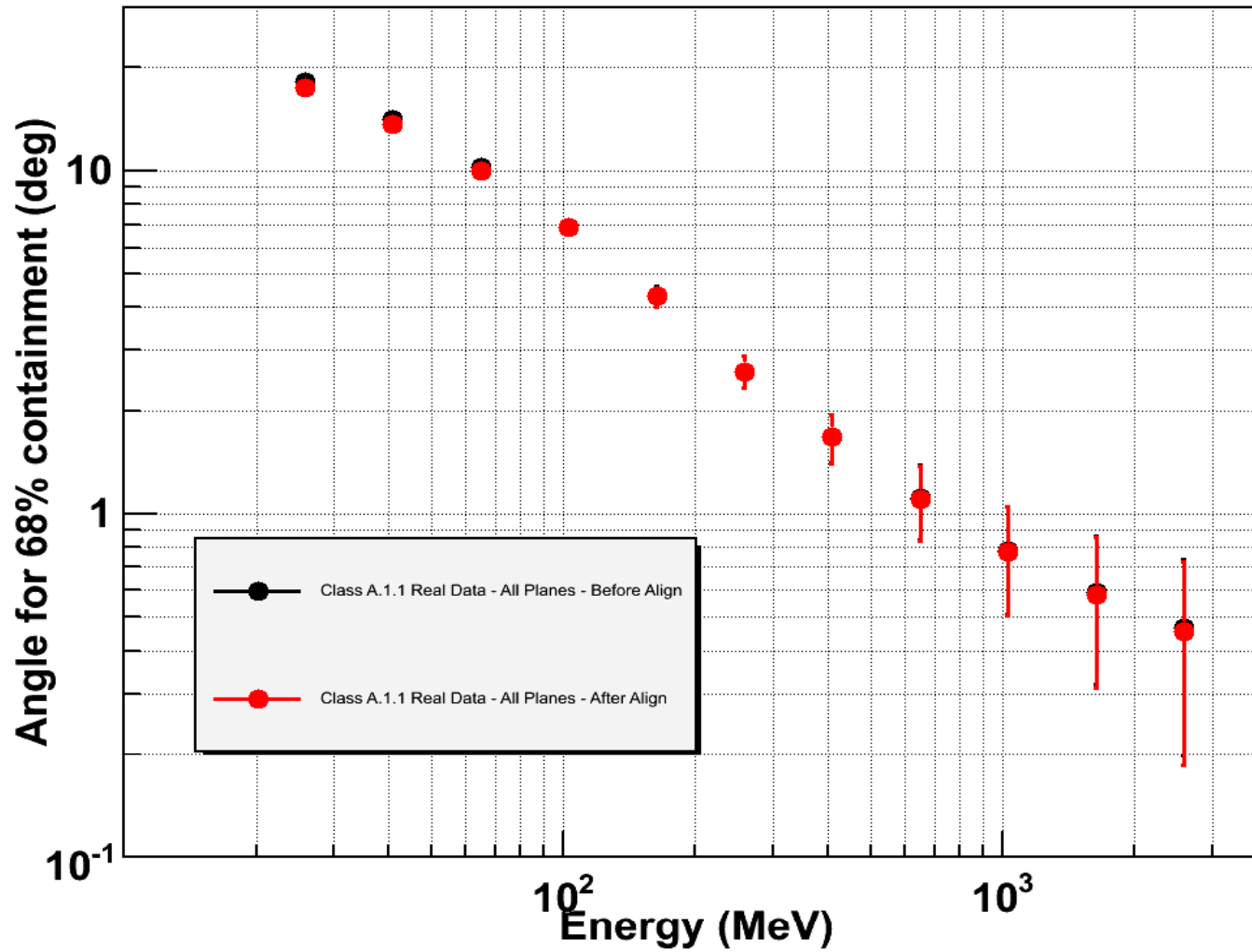


**The minimum is found at  $\Delta\phi = -0.2^\circ$  and  $\Delta\theta = 0^\circ$**



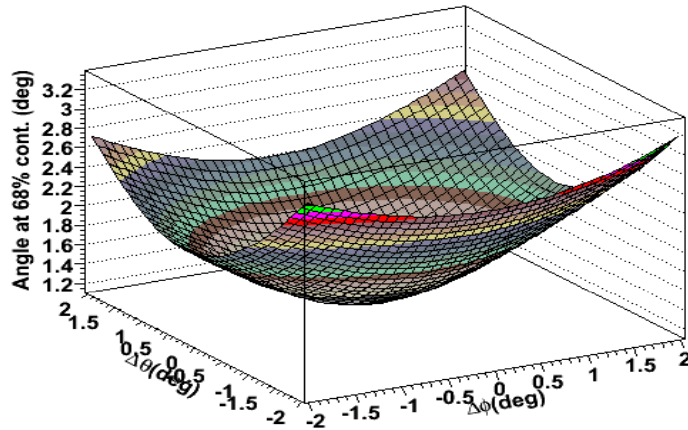
# FB – 30 deg

Data - Angular Resolution Vs. Reconstructed Energy at 30 deg Incidence (2.5 GeV Electron beam)

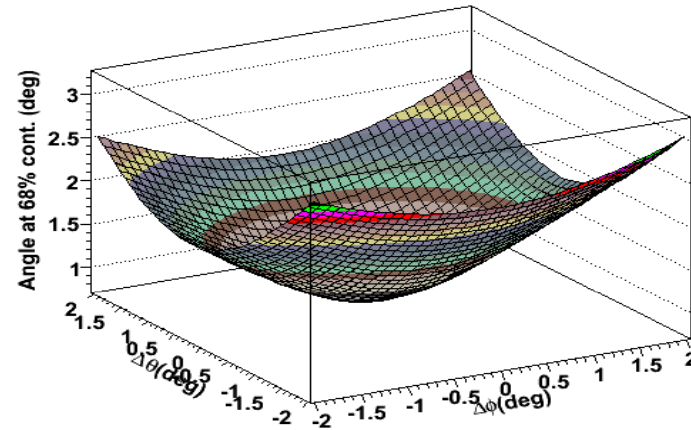


# FB – 50 deg, scanning

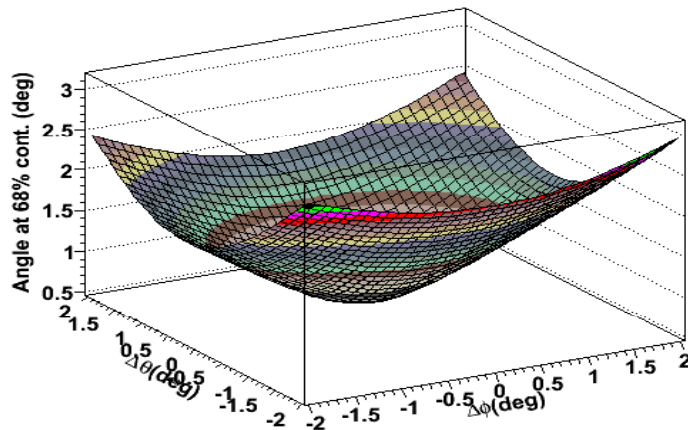
Energy (MeV) [502.37738, 796.214478]



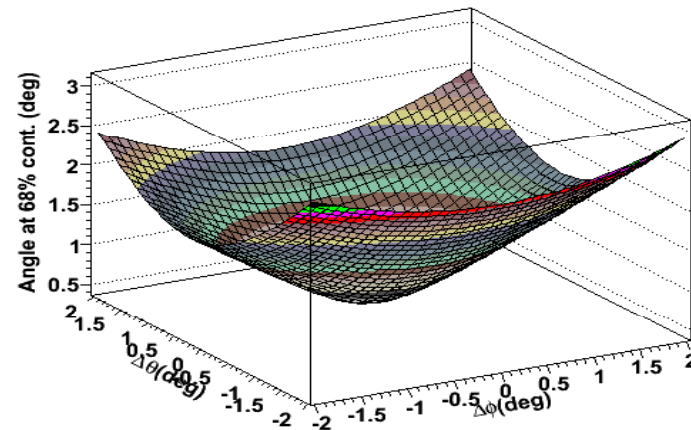
Energy (MeV) [796.214478, 1261.91492]



Energy (MeV) [1261.91492, 2000.00037]



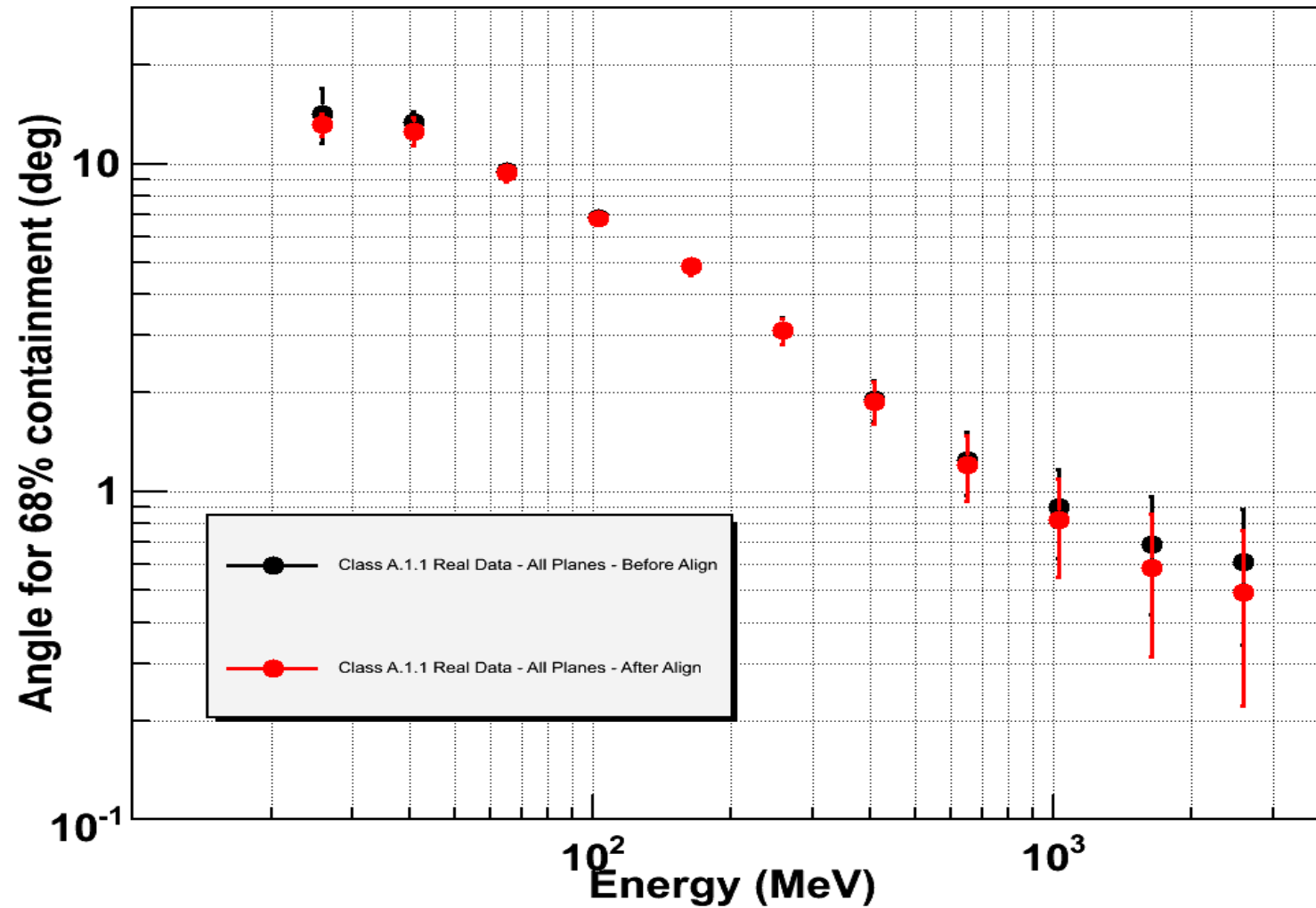
Energy (MeV) [2000.00037, 3169.78711]



**The minimum is found at  $\Delta\phi = -0.1^\circ$  and  $\Delta\theta = 0.3^\circ$**

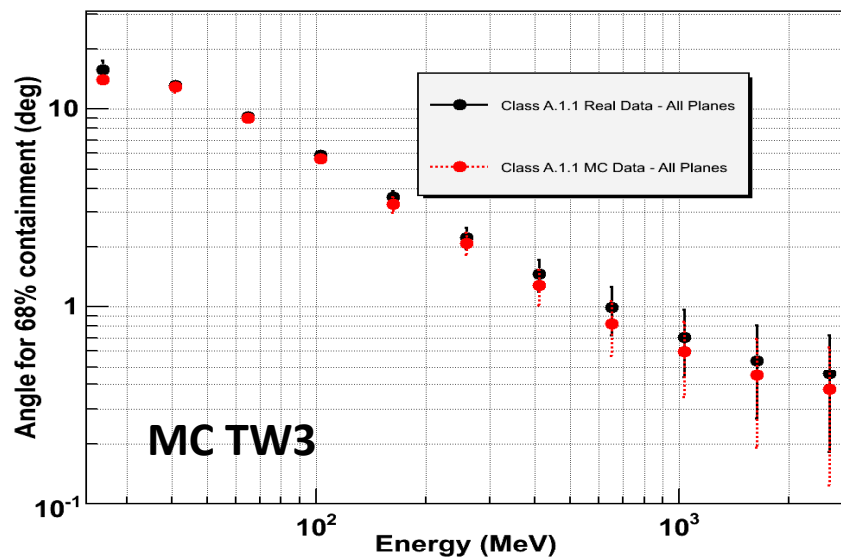
# FB – 50 deg

Data - Angular Resolution Vs. Reconstructed Energy at 50 deg Incidence (2.5 GeV Electron beam)

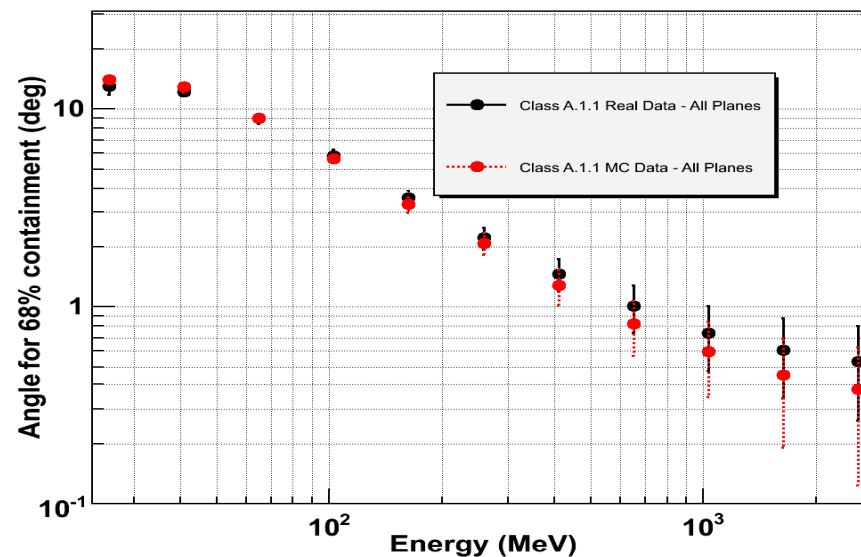


# Data-MC (mass simulation) comparison (Final results?)

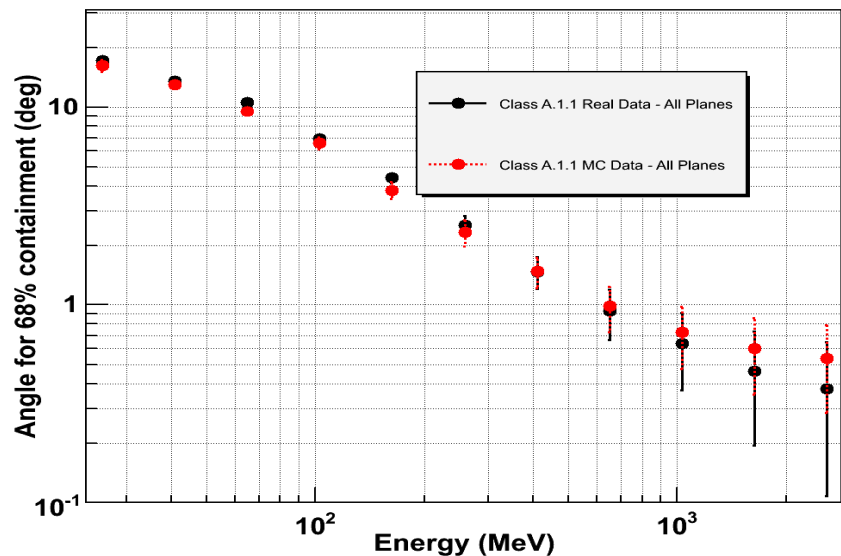
Tower 2 - Angular Resolution Vs. Reconstructed Energy at Normal Incidence (2.5 GeV Electron beam)



Tower 3 - Angular Resolution Vs. Reconstructed Energy at Normal Incidence (2.5 GeV Electron beam)



Angular Resolution Vs. Reconstructed Energy at 30 deg Incidence (2.5 GeV Electron beam)



Angular Resolution Vs. Reconstructed Energy at 50 deg Incidence (2.5 GeV Electron beam)

