Transverse Impact Parameter Resolution for CLIC and FCCee

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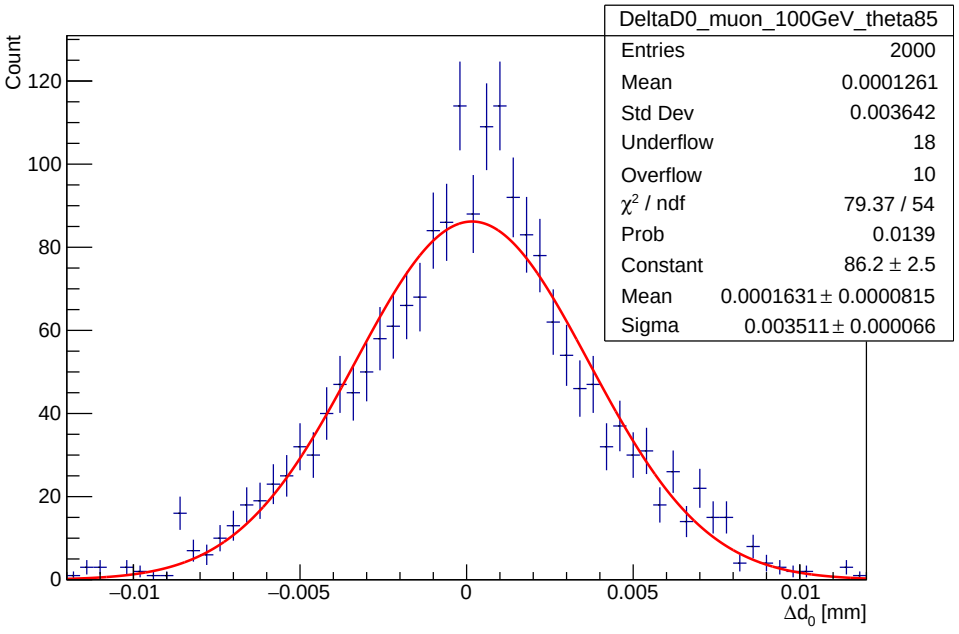
August 15, 2017

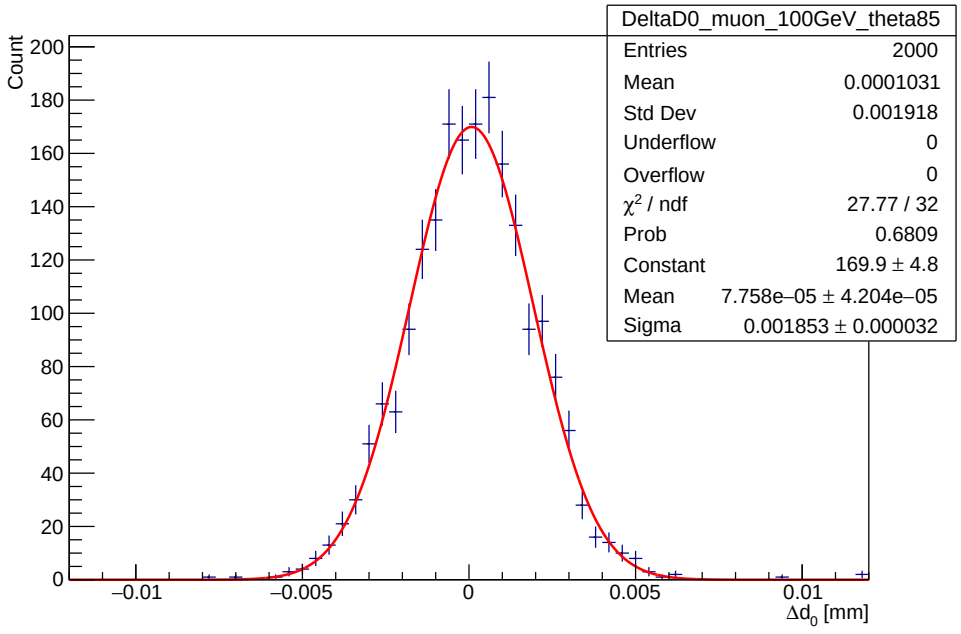
Introduction

- The 2017-07-12 version of the ILC software was used.
- The *CLIC_o3_v11* and the *FCCee_o5_v03* detector models were used.
- Muons were fired with 1 GeV, 10 GeV and 100 GeV at various angles.
- This was repeated 2000 times.
- Events were reconstructed using truth tracking, with and without the new refit.
- Events with $recoP < 0.9 \cdot trueP$ were excluded. This primarily affect very forward events.
- $\sigma(d_0)$ for a given angle and energy was found by fitting a histogram of $d_{0_{reco}} - d_{0_{truth}}$ with a Gaussian.

D0 distributions

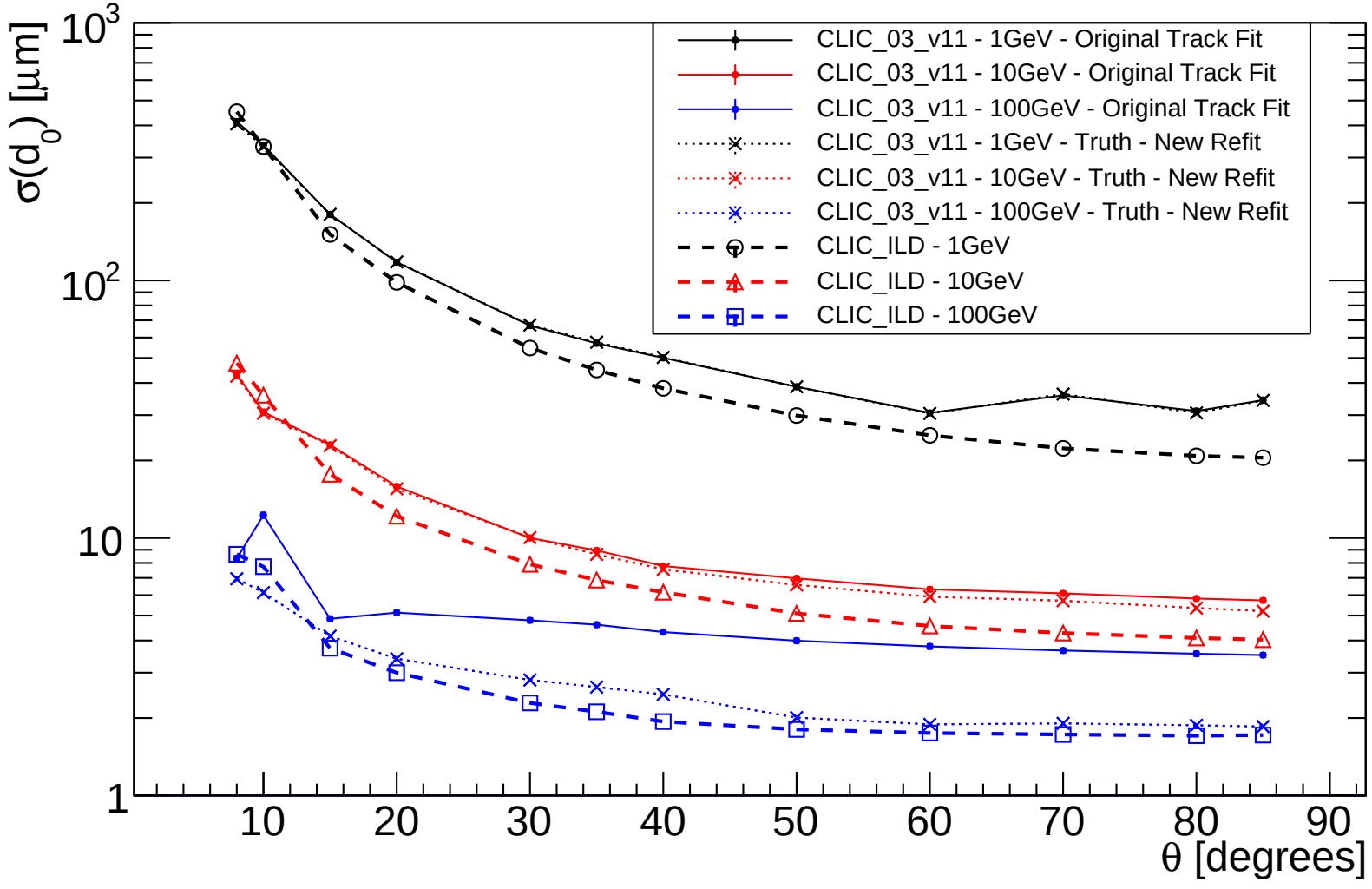


(a) Normal truth tracking

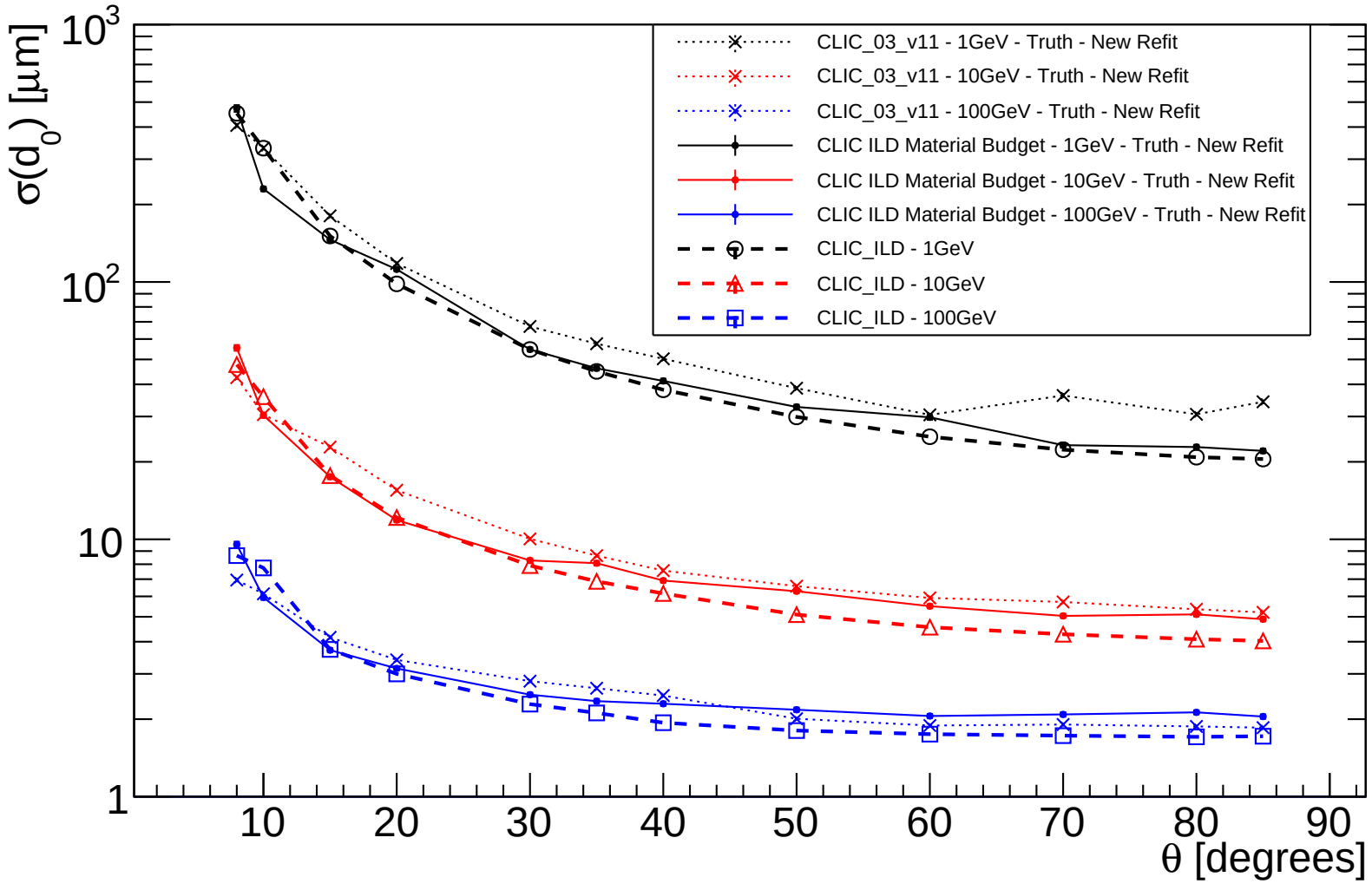


(b) Truth tracking with refit

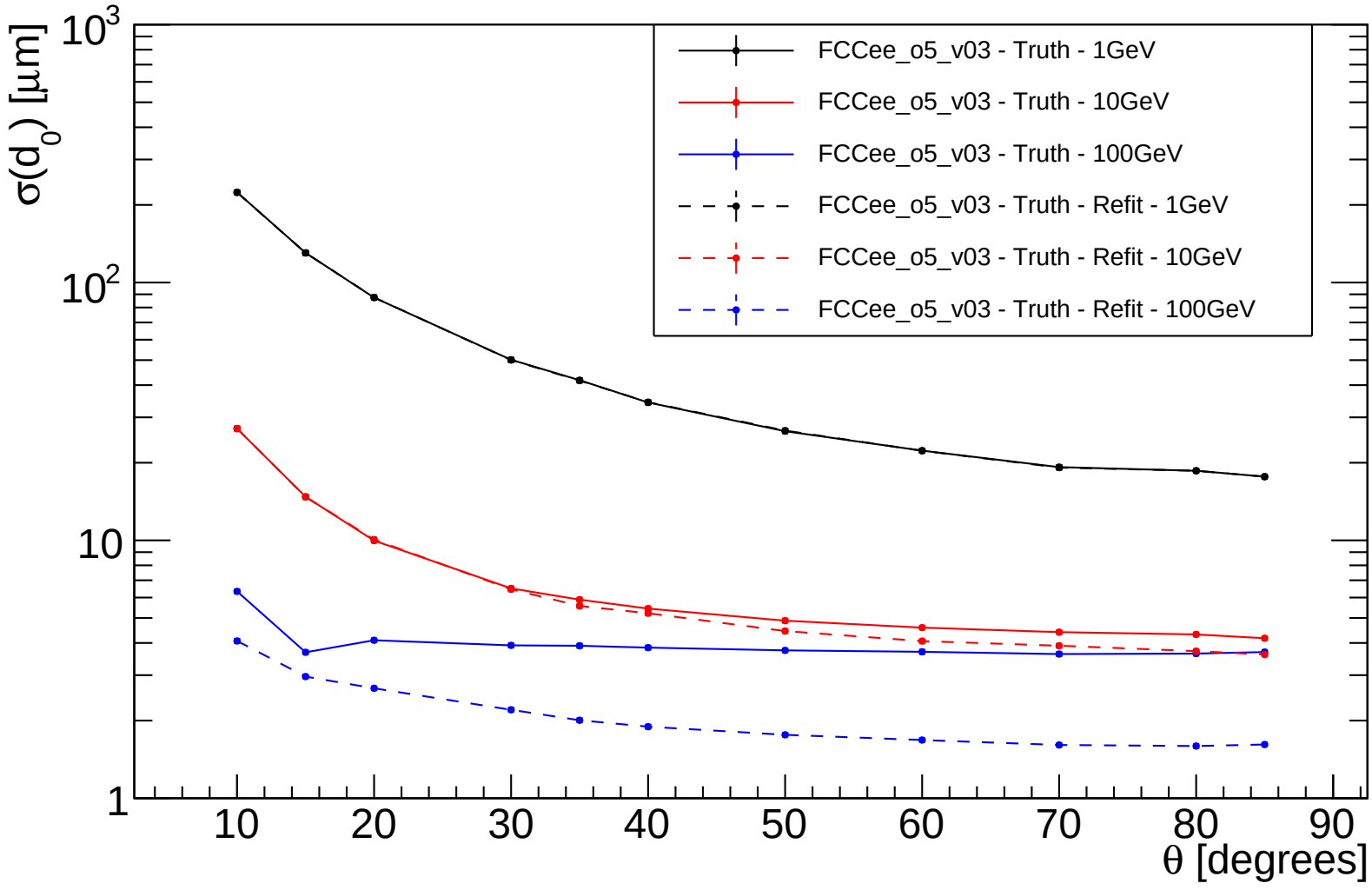
CLIC_o3_v11 vs. CLIC ILD



CLICdet With ILD Material Budget



FCCee_o5_v03


FCCee_o5_v03 - Truth - 1GeV
FCCee_o5_v03 - Truth - 10GeV
FCCee_o5_v03 - Truth - 100GeV
FCCee_o5_v03 - Truth - Refit - 1GeV
FCCee_o5_v03 - Truth - Refit - 10GeV
FCCee_o5_v03 - Truth - Refit - 100GeV
σ(d0) [μm]
10^3
10^2
10
1
10
20
30
40
50
60
70
80
90
θ [degrees]