Fiducial Volume Systematics

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Data and Code

Data:
Run 1 (2.938e19 POT)
Run 2 (3.797e19 POT)

MC:
Run 1 (2.775e20 POT)
Run 2 (3.355e20 POT)
(normalized to the data POT)

Software:
Glen's Code (P0DNCPi0Analysis.C as of June 13, 2:30pm)
With the following modifications:
Vertx is within the Fiducial Volume if:
Xmin + xy_offset < X < Xmax – xy_offset
Ymin + xy_offset < Y < Ymax – xy_offset
Zmin + zus_offset < Z < Zmax – zds_offset
Variations

The parameters were varied both above and below their current settings. The following plots will show these steps:

XY Offset: (currently 250mm)
[110, 180, 250, 320, 390]

ZUS Offset: (currently 0mm)
[-200, -100, 0, 100, 200]

ZDS Offset: (currently 0 mm)
[-200, -100, 0, 100, 200]

*** All offsets will be given in mm ***
Run 2 - XY Variations

NCpi0 Reconstructed in Fiducial Volume

- Data
- MC

Ratio NCpi0 Reco in Data to MC

Efficiency

Saved Signal / True signal in FV

Purity

True in NCpi0 Reco/Total NCpi0 Reco
Run 2 - ZUS Variations

NCPi0 Reconstructed in Fiducial Volume

- Data (●)
- MC (○)

Ratio NCPi0 Reco in Data to MC

Efficiency

Purity

Saved Signal / True signal in FV

True in NCPi0 Reco/Total NCPi0 Reco