27/Nov/2006 H. Tatsuno

E570 analysis summary (before writing paper)

ADC : TKO comparator-type PH-ADC

Calibration : calibration triggered (SDDT2) events

- TKO FOUT vs OUT correlation cut
- VME flash ADC cuts - "chisq", post-slope, pedestal (average)

Signal : E549 triggered (SDDT1) events

- TKO FOUT vs OUT correlation cut
- VME flash ADC cuts - "chisq", post-slope, pedestal (average)
- SDDT1 Kstop timing cut
- Fiducial volume cuts - x,y and z positions inside the target
- In-flight decay/reaction K cuts

Calibration

SDD gain drift correction

run packing (version 4 or 5)
(~1 shift or ~2 shift)

Using Ti Kα1 and Ni Kα1 from X-ray Data Booklet
ignore the Kβ lines (as background)

Fit function
Gaussian (Kα1,2 and Kβ)×2 + pol-2 background

Signal

Conversion : channel to energy

randomize the ADC channel using uniform distribution function

→ ch ± 0.5 × UniformRand

Fit function

Gaussian (Kα1,2 and Kβ)×2 + pol-2 background

Voigtian (KHeX Lα, Lβ and Lγ)

(+ other X-rays Gaussians)

fix the sigma (noise and Fano) by calibration triggered events

free the shift and the natural width on the KHeLα and propagate them to KHeX Lβ and Lγ

Systematic Errors

Calibration

Energy : Ti Kα1 and Ni Kα1

Conversion : channel to energy

Run packing

Background (including Kβ)

Signal

Background