FTPC Lambda search in dAu

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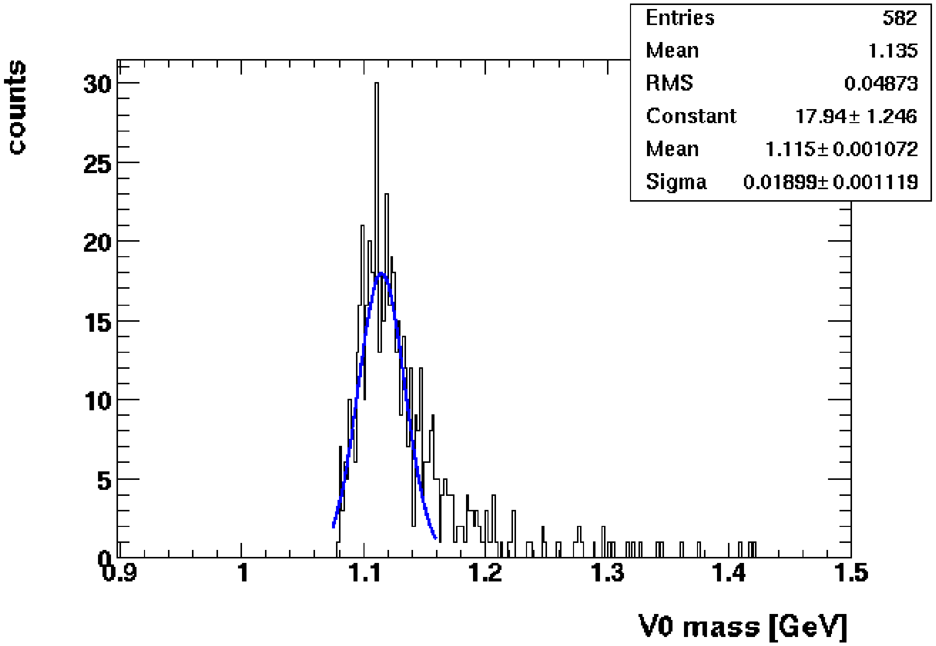
Outline

- What's the challenge?
- A first look
- Outlook / To Do

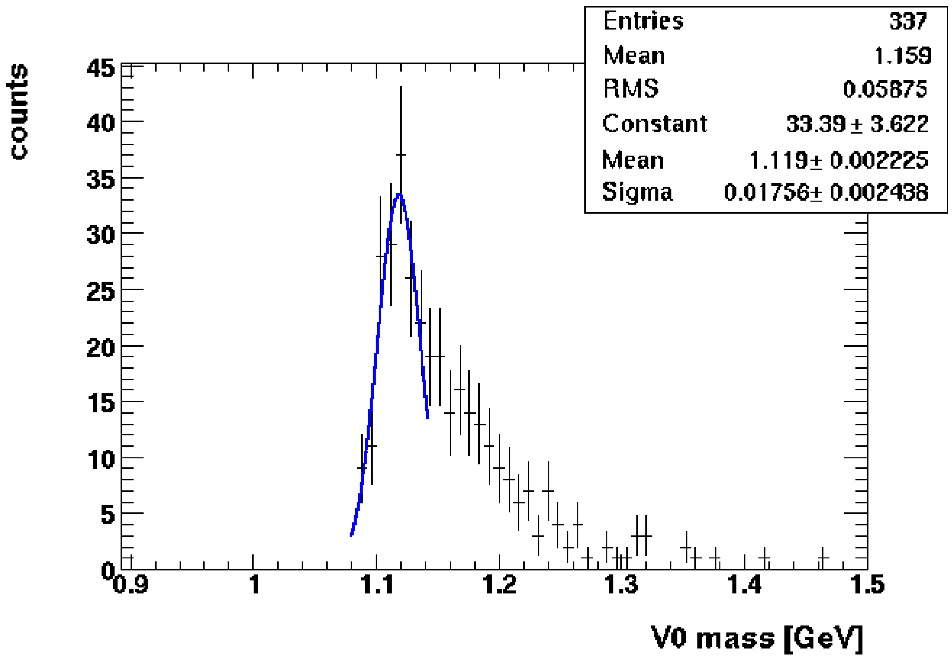
FTPC Λs: The Challenge



- No particle ID via dE/dx
  - all p/n pairs have to be looked at
- poor momentum resolution for global tracks
  - wide mass peak

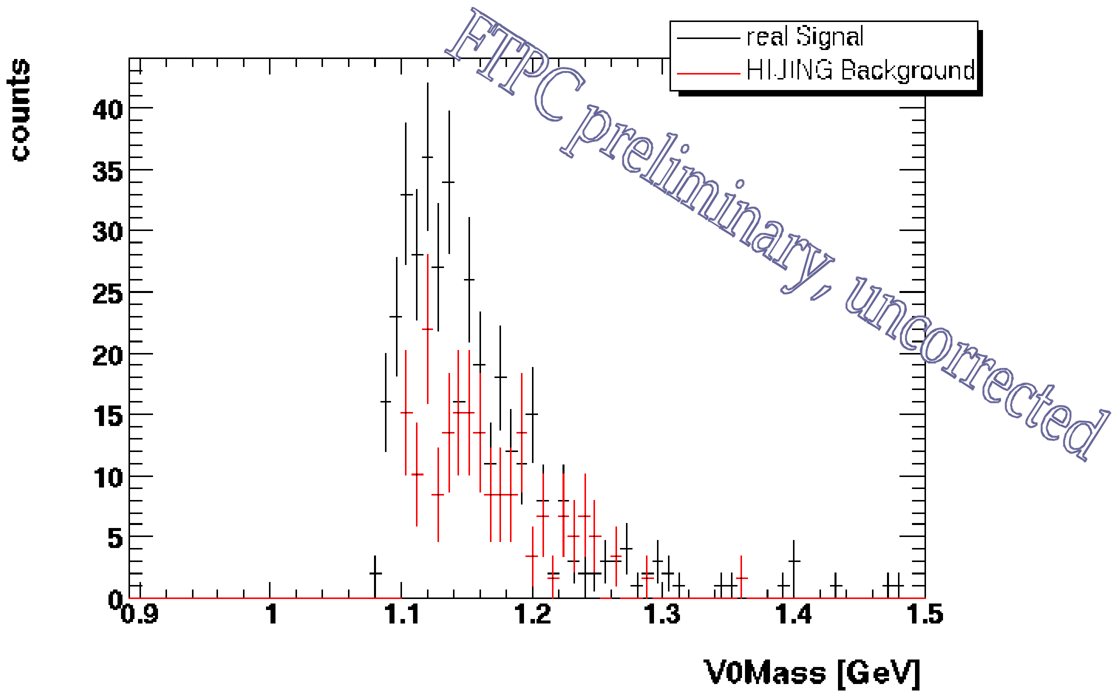
- Expected yield: 50 Λ + anti–Λ in 1000 events could actually be found in the FTPCs
- First look: only FTPC west, minimum of 9 hits on each daughter track: 12 Λ + anti–Λ in 1000 events

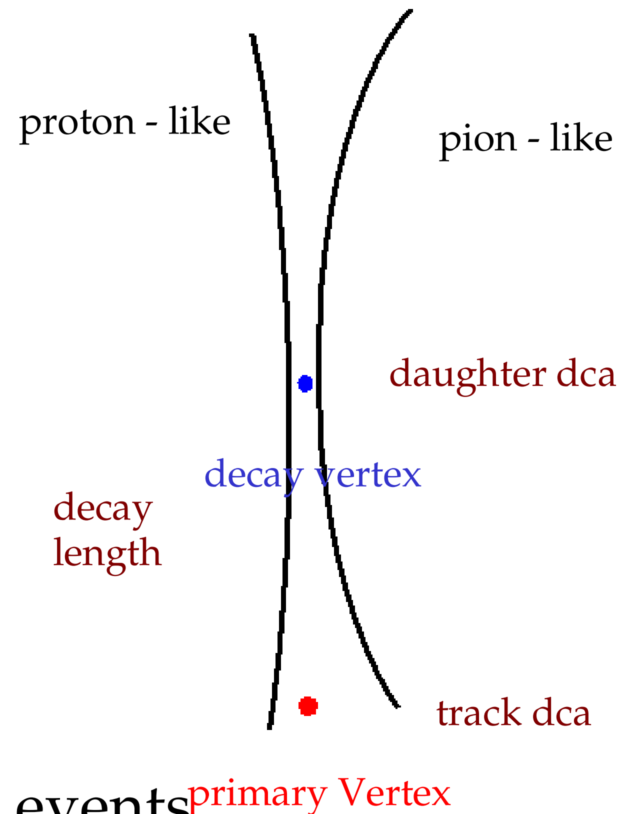
Λ Results in dAu Simulations



- Tests of my code on dAu Hijing production (100k events) hint that it might actually be working!
- Guess at background by removing all tracks that originate from Λs and run that sample through my cuts

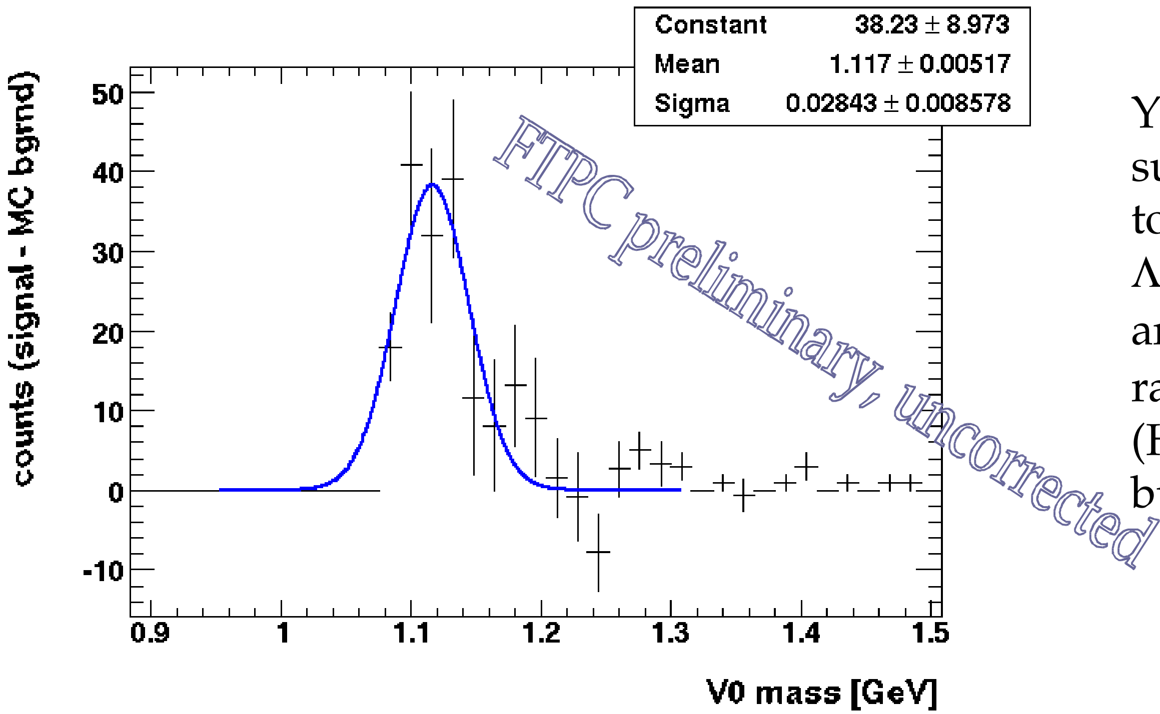
First Results From dAu





- Results from ~ 1.1 M RFF dAu minbias events
- Vertex z < 20 cm (leaves ~ 250 k evts), p_t < 1 GeV, FTPC west only
- Cuts on track dca, pair dca, decay length, Armenteros alpha
- Background guessed from simulations

First Shot at Background Subtraction



Yields after MC background subtraction:

total: 137

Λ: 89

anti – Λ: 48

ratio anti – Λ / Λ: ~ 0.54

(HIJING with cuts ~ 0.5)

but: Hijing has much higher yield…

- First try at subtracting MC background from real data
- Background symmetric in Λ / anti - Λ

Outlook / To Do

- Lambdas are probably doable in the FTPC, especially in dAu (low multiplicity)
- Background studies
- Understand cuts!
- Embedding!