

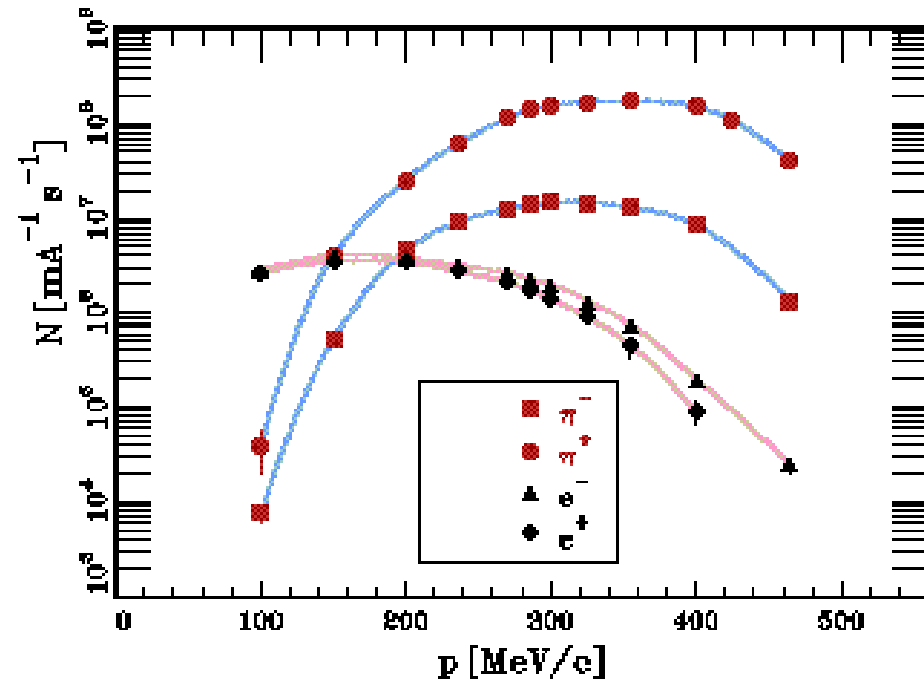
PiNG – Pi, proton or $\mu \rightarrow n, \gamma$

1. PiM1 beam at PSI
2. ToF neutron/gamma
3. Targets, design, ideas?

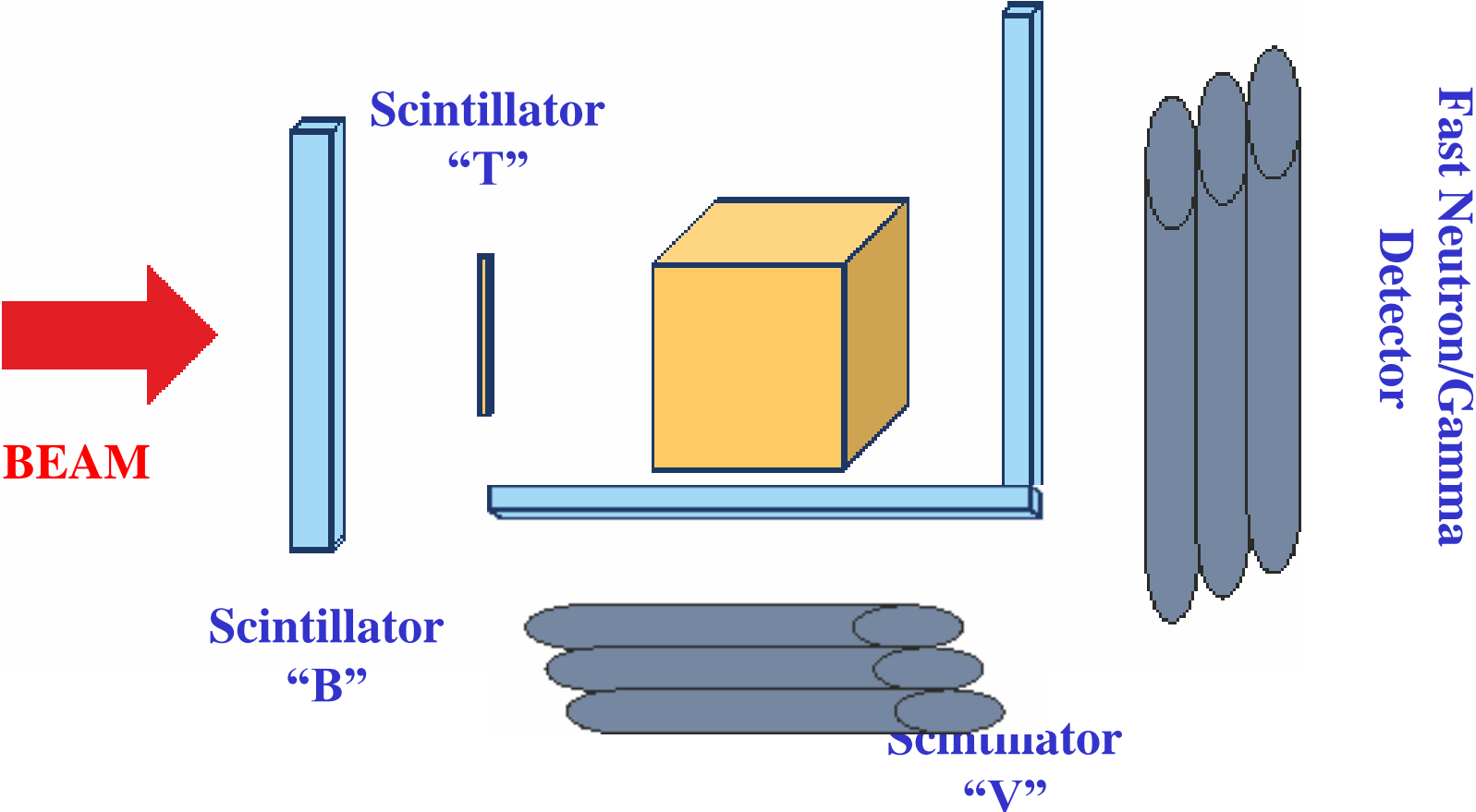
Alex Howard ETH, Zurich
Geometrical Event Biasing Overview
Geant4 Collaboration Workshop ESTEC 6th October 2010

PiM1 beam @ PSI:

- π^+ , π^- , p , e^+ , e^- , decay μ^+ , μ^-
- Momentum selection from 80 MeV/c to 590 MeV/c
 - 3.5 MeV to 170 MeV for proton
 - 21 MeV to 433 MeV for pions
- π^- purity up to 99% (1% μ^+ , μ^-)
- Momentum: 0.1% resolution, 2.9% FWHM
- Intensity up to 4.4×10^8 particles/s (!)
- http://aea.web.psi.ch/beam2lines/beam_pim1.html



Schematic of set-up

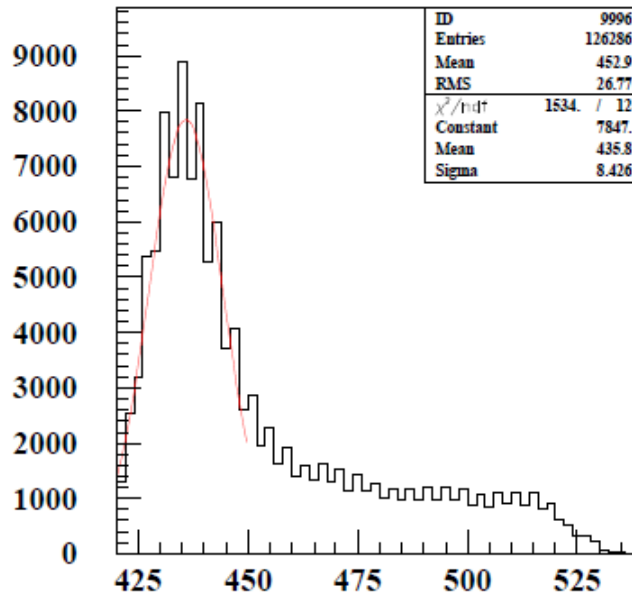


“Toy” test - Timing

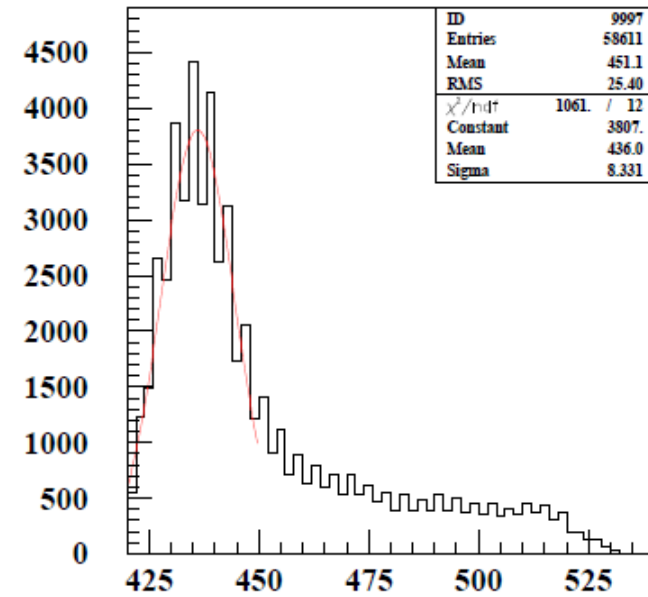
- Proton beam impinged on a lead and copper block to test timing of our DAQ system
- ToF gives clear cut between gammas and neutrons
- Secondary/independent test of the performance of neutron detector - efficiency and discrimination
- Trigger: Beam scintillators (B+T) together with large scintillator (V) after target as a veto for charged fragments and primary beam particles
 - (B+T)-V

First ToF spectrum

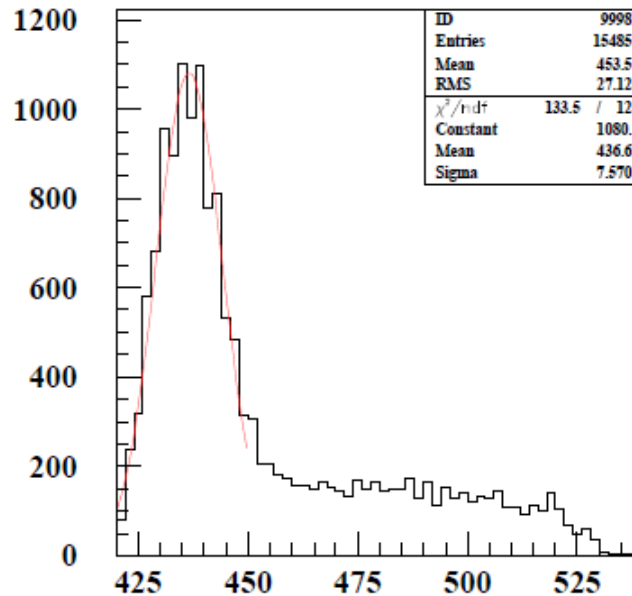
~0.1ns precision for the fastest components (gammas, I hope!)



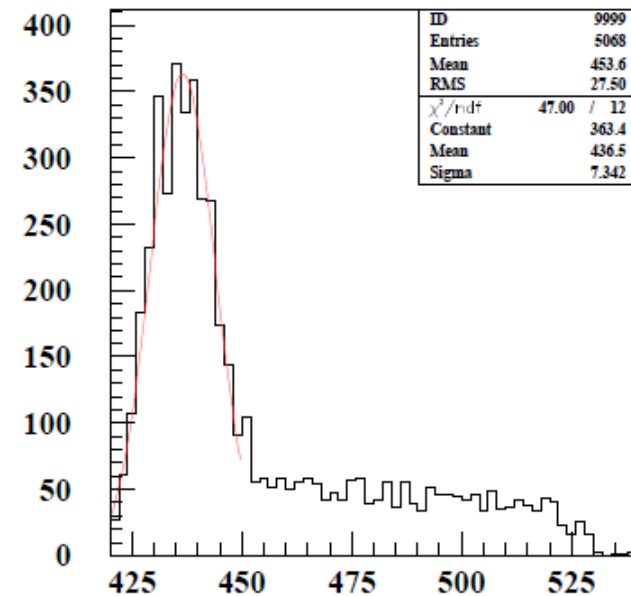
ToF Helium 52cm



ToF Argon 52cm



ToF Helium 29cm



ToF Argon 29cm