

Preparations for Germanium Irradiation test at TRIGA

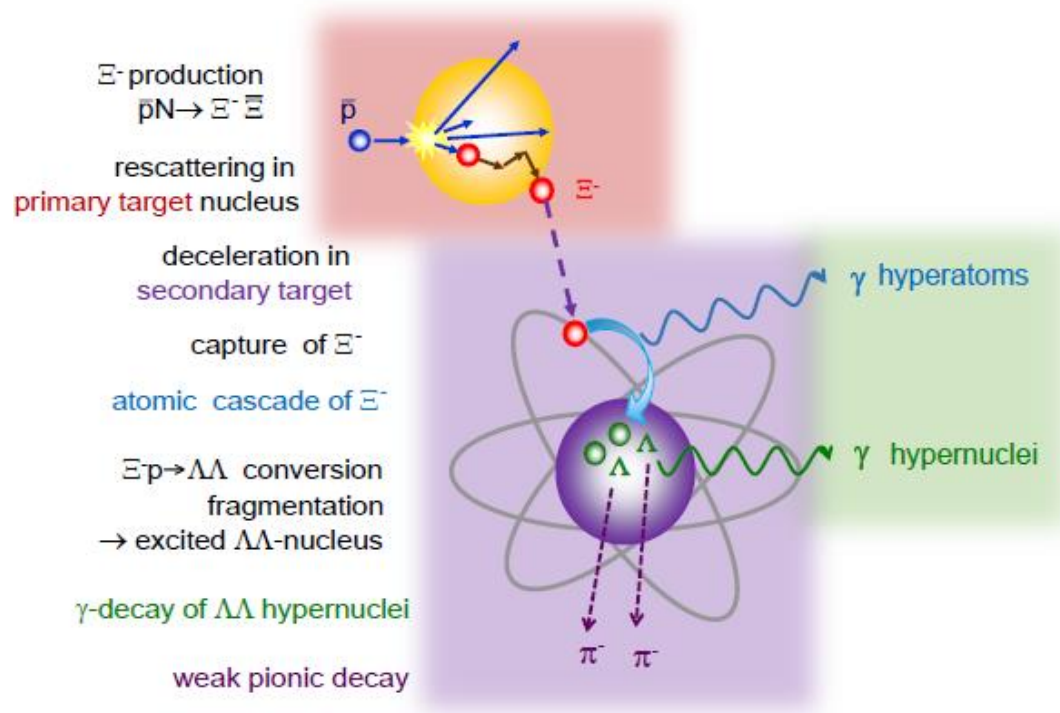
Michael Bölting

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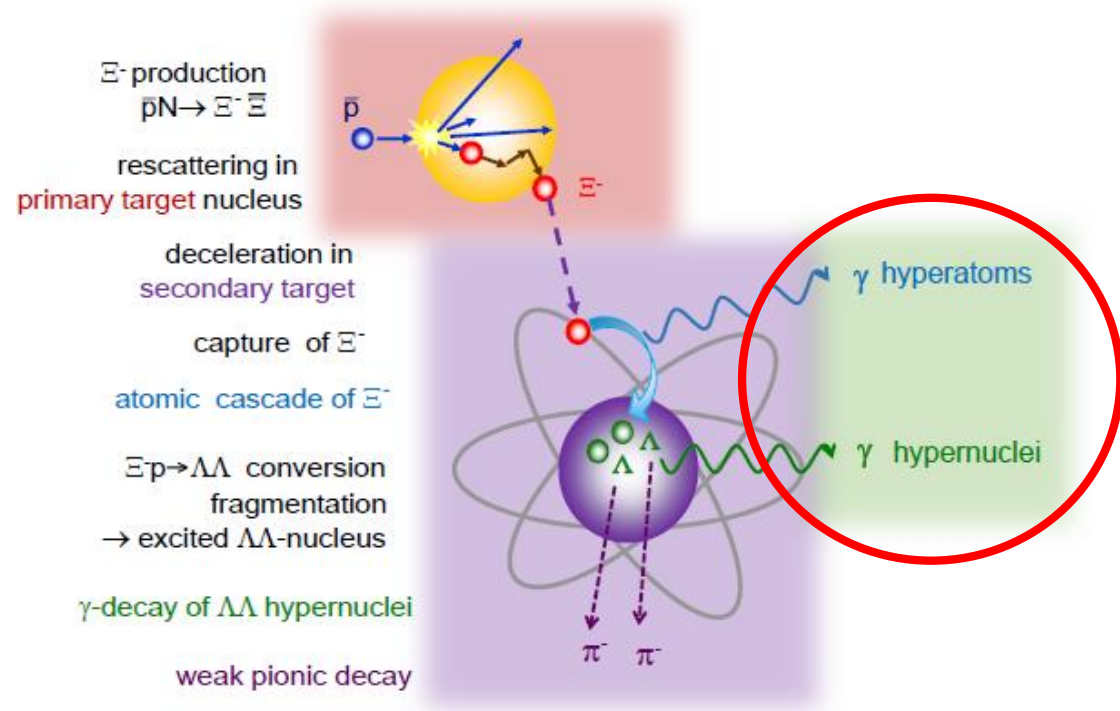
PANDA Meeting 20/1, 2020-03-09 – 2020-03-13

Hypernuclei production scheme

- $\bar{p}N \rightarrow \Xi^- \Xi$
- Capture Ξ^-
- Produce hyperatoms/-nuclei



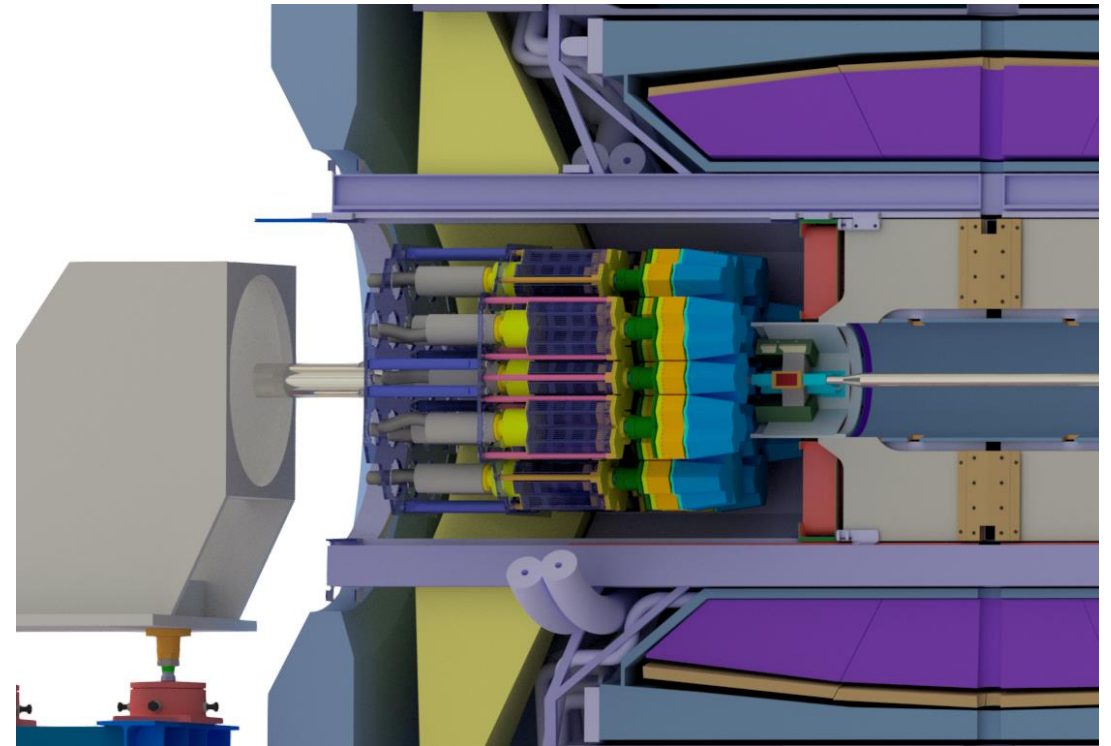
Hypernuclei production scheme



- $\bar{p}N \rightarrow \Xi^- \bar{\Xi}$
- Capture Ξ^-
- Produce hyperatoms/-nuclei
- Measure γ -rays
100 keV-10MeV

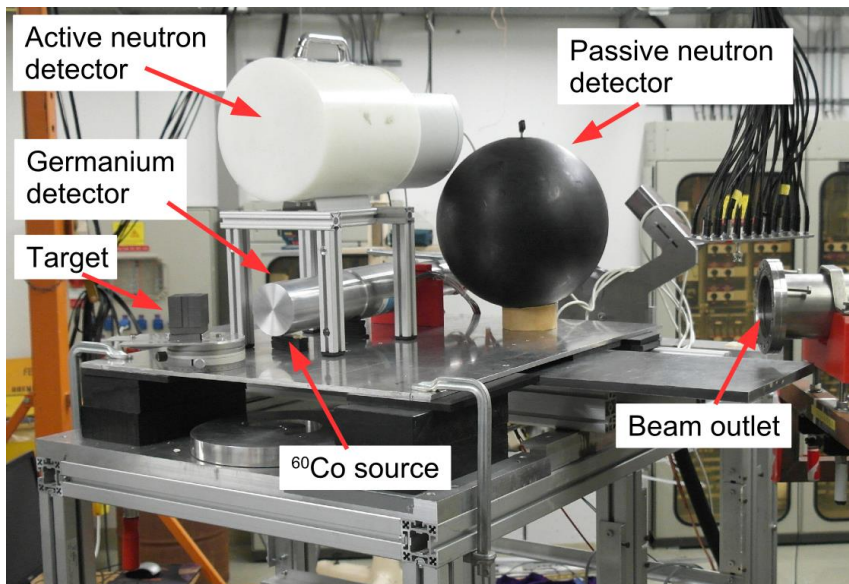
Hypernuclei setup

- Remove MVD
- Dedicated target system
- Remove EMC endcap
- Germanium Detector array
→ radiation damage

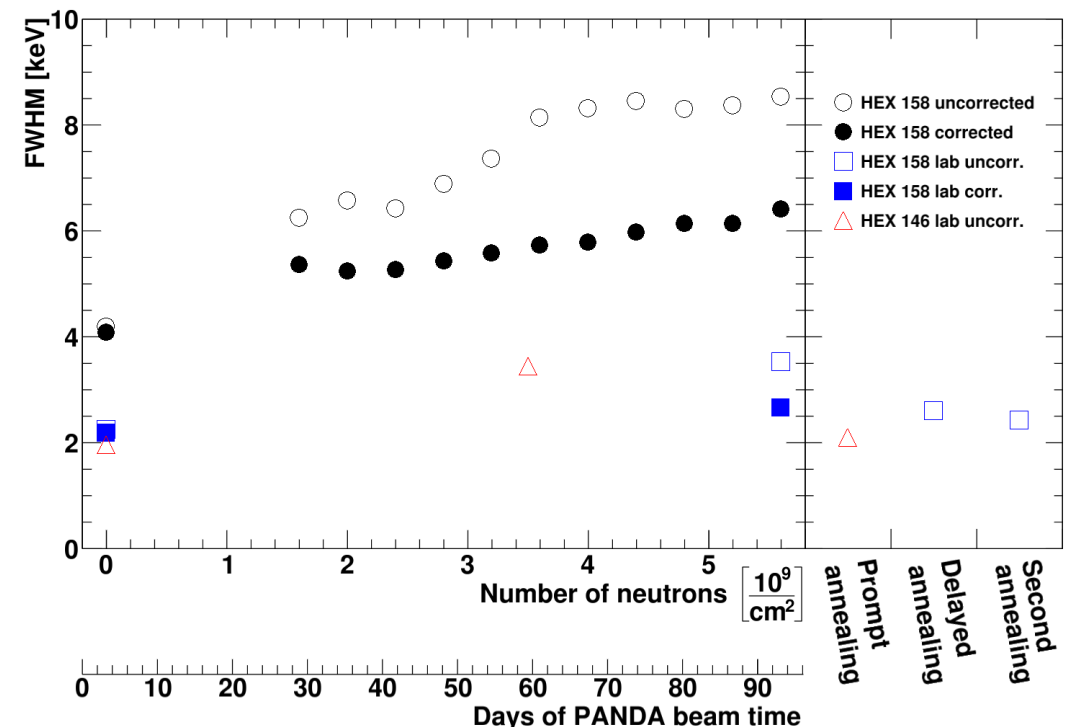


Past Tests at Cosy (Jülich)

- 3 GeV/c proton beam on graphite target
- Thermal and DAQ issues
- Full $\bar{P}$ ANDA hardly feasible

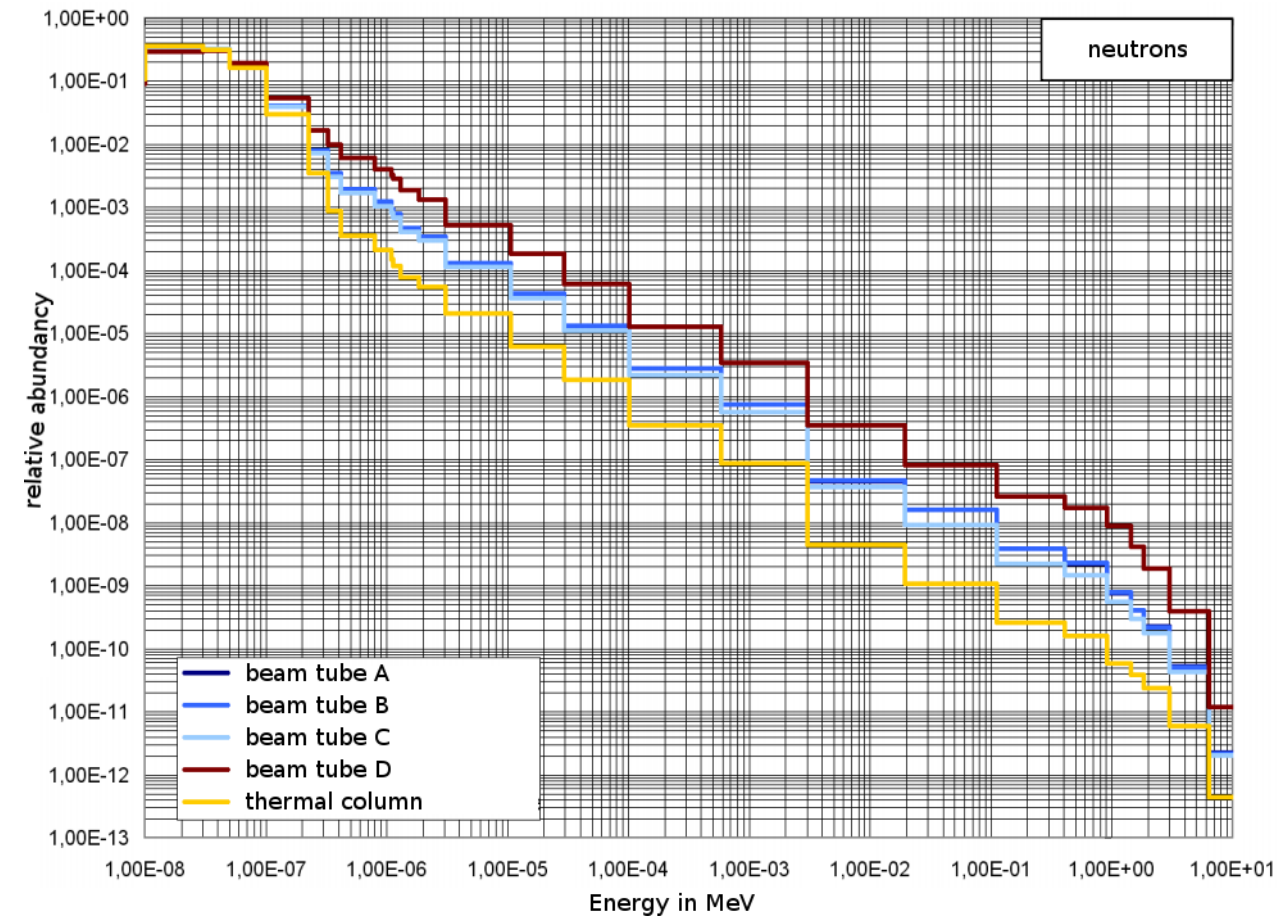
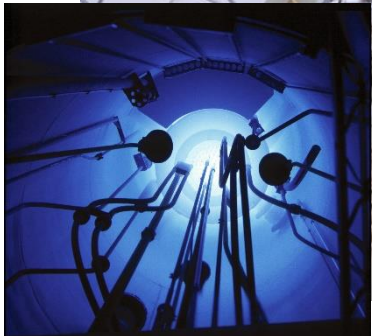
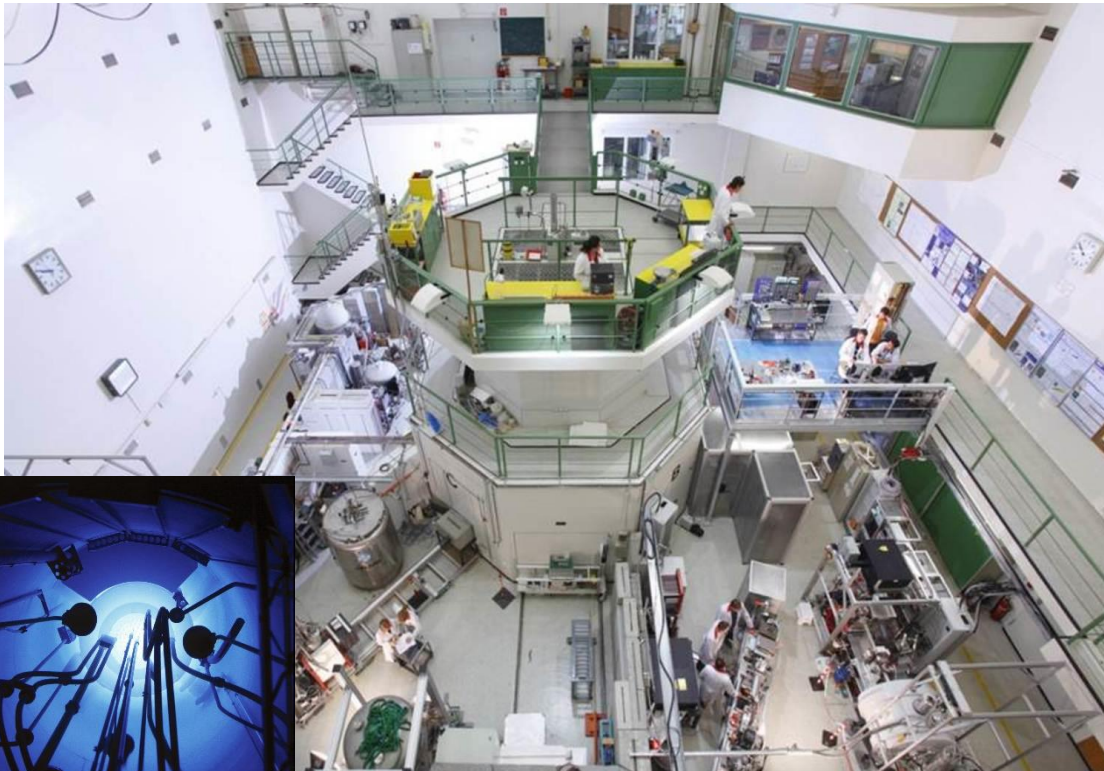


Promising Results



TRIGA Mainz

- Swimming pool reactor
- Slow neutron source



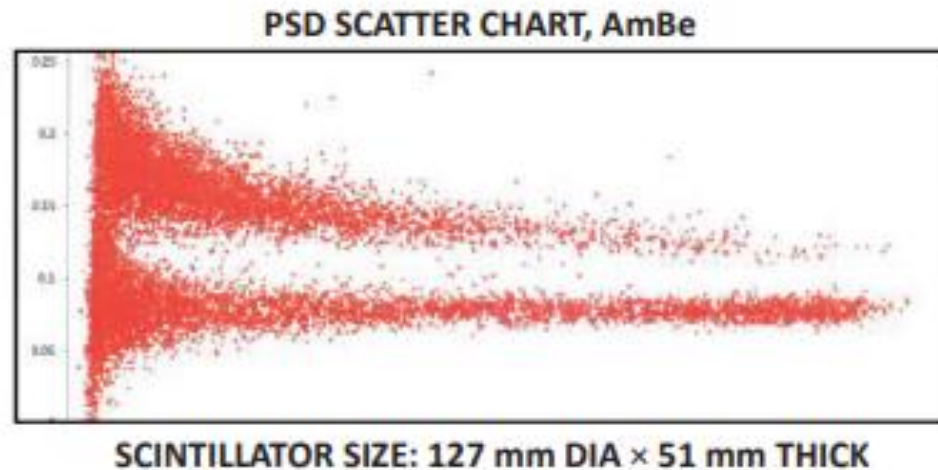
Wortmann, B. Diss. TU Dresden, 2008

Setup at TRIGA



Scintillator Choice

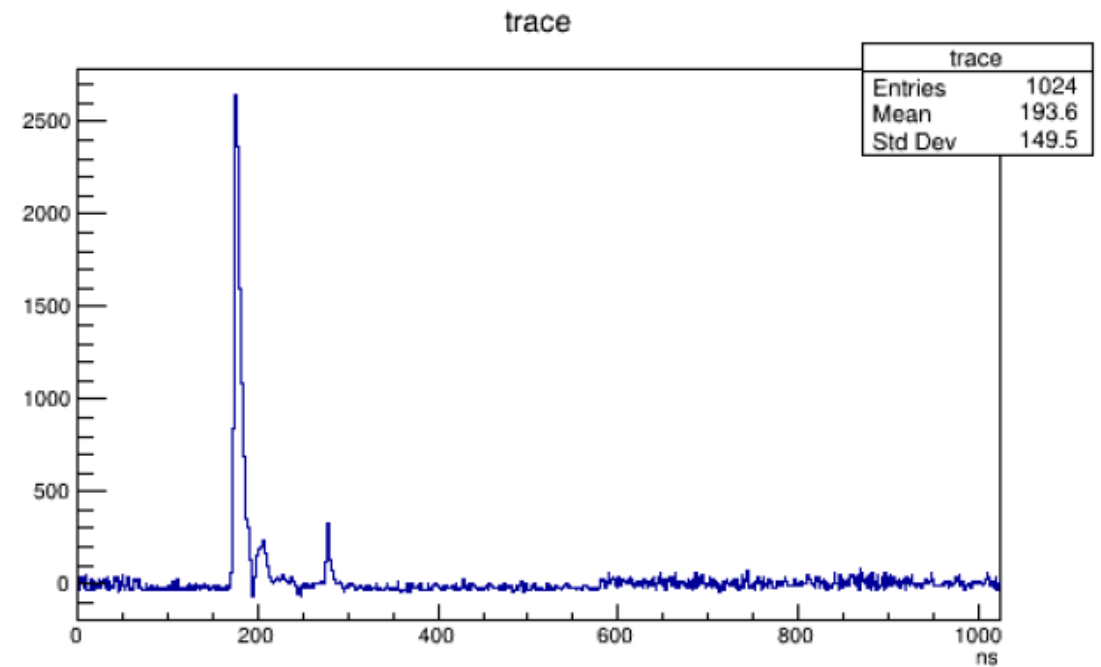
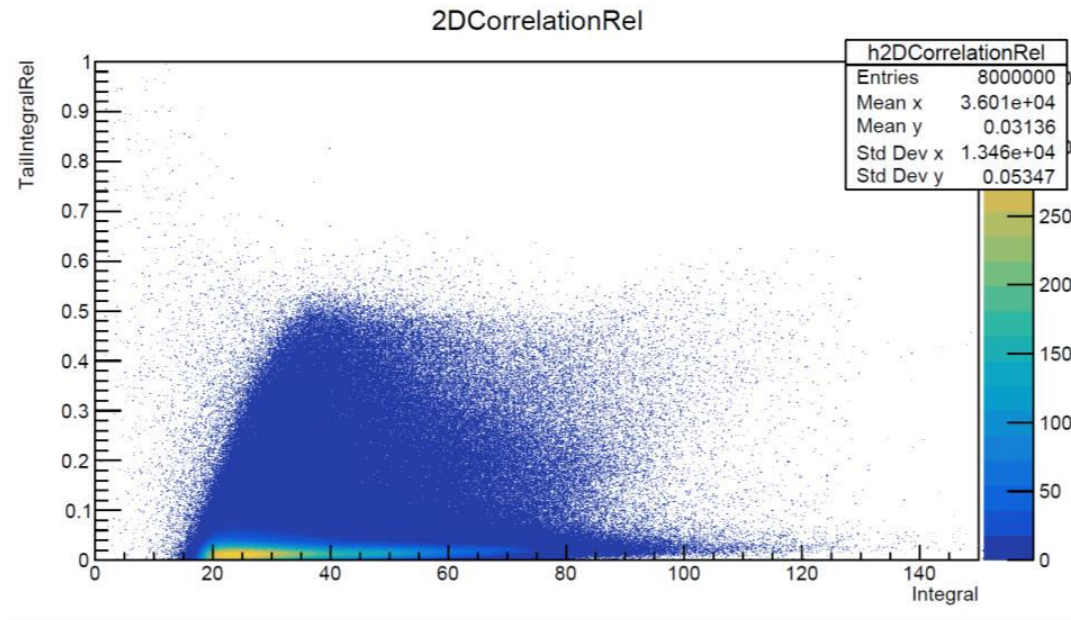
Fast n/ γ Pulse Shape Discrimination



Decay times

n	13	35	270
γ	13	59	460

Results and Cause



Thank you



PANGEA

- 20 triple cluster detectors
- High purity Germanium
- Problem: Fast neutron background
 - Displacement of atoms

