Group Meeting : Report about EURICA Campaign

Jun. 21. 2016. Tue.

Byul Moon

Progress during the Stay

- 16. 05. 09 ~ 13 : Working on the setup of a β-trigger system from AIDA to EURICA.

- 16. 05. 16 ~ 20 : Access to the data from EURICA-U2013 campaign and study the data structure and the analysis. Discuss with P.-A. about the future analysis.

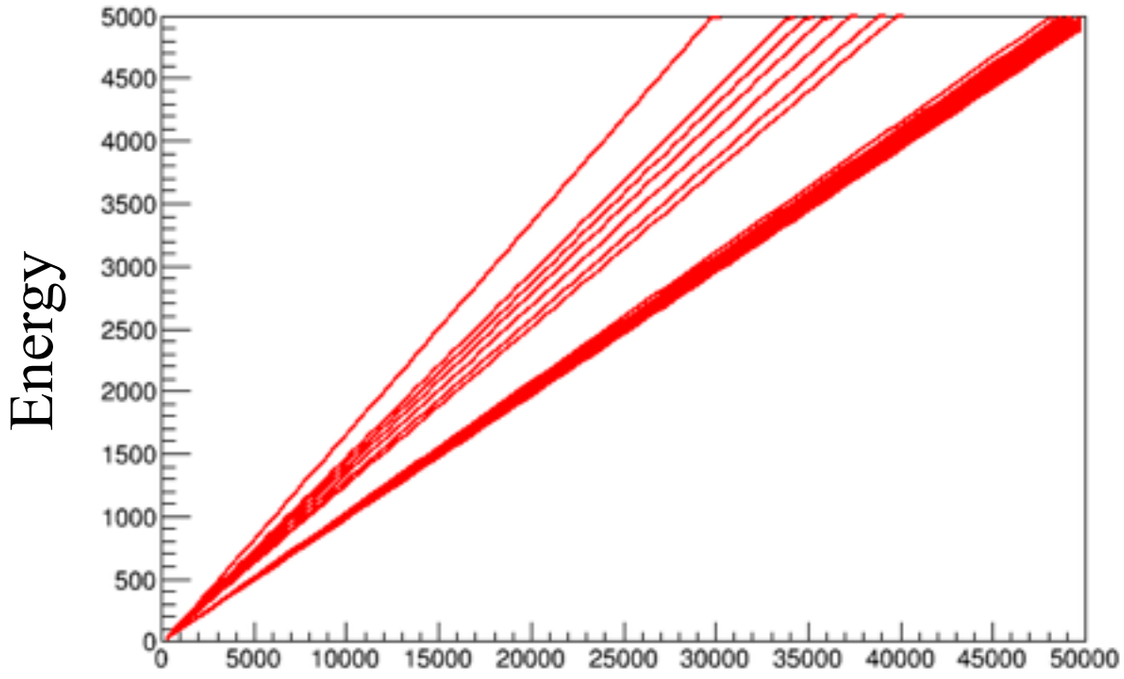
- 16. 05. 23 ~ 27 : Working on the mapping and the calibration of EURICA. Checking DGF channels and TFA channels. Checking dead crystals. The calibration on the offset, the energy, and the efficiency.

- 16. 05. 30 ~ 06. 03 : Preparing for the coming experiment.

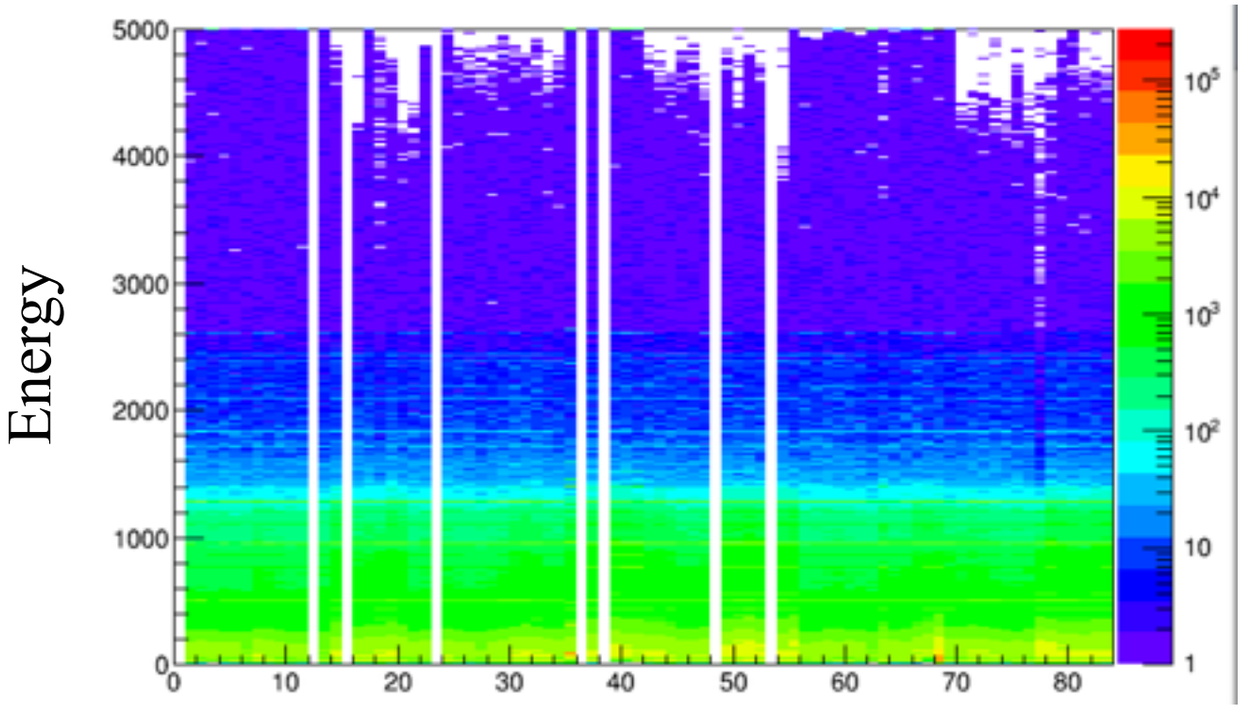
- 16. 06. 04 ~ 16. 06. 07 : Start the beam time. Shift duty.

Calibration

- Energy Calibration of EURICA



Gain fitting for each channel

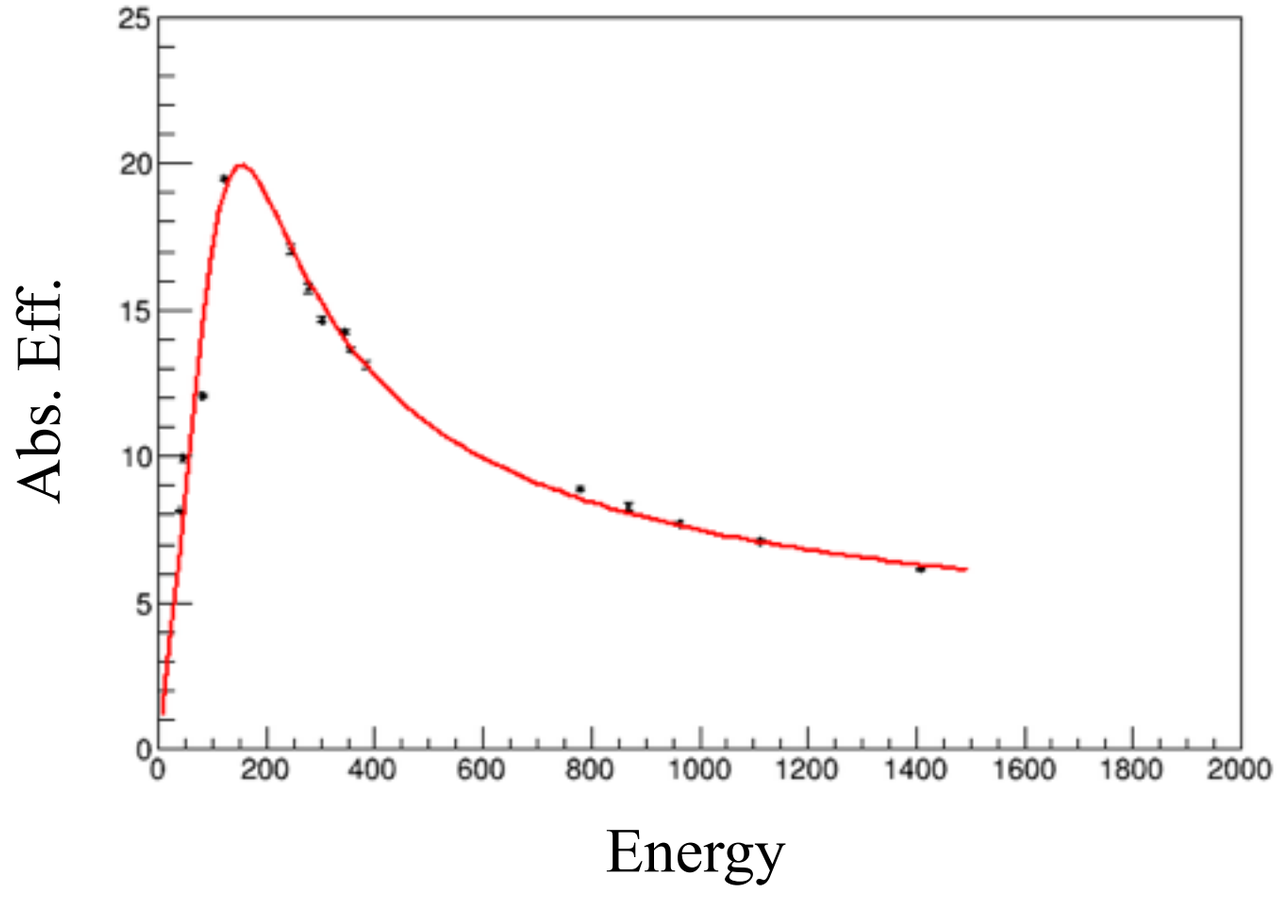


Calibrated energy for each channel

Using ^{152}Eu source. Total 7 dead crystals.

Calibration

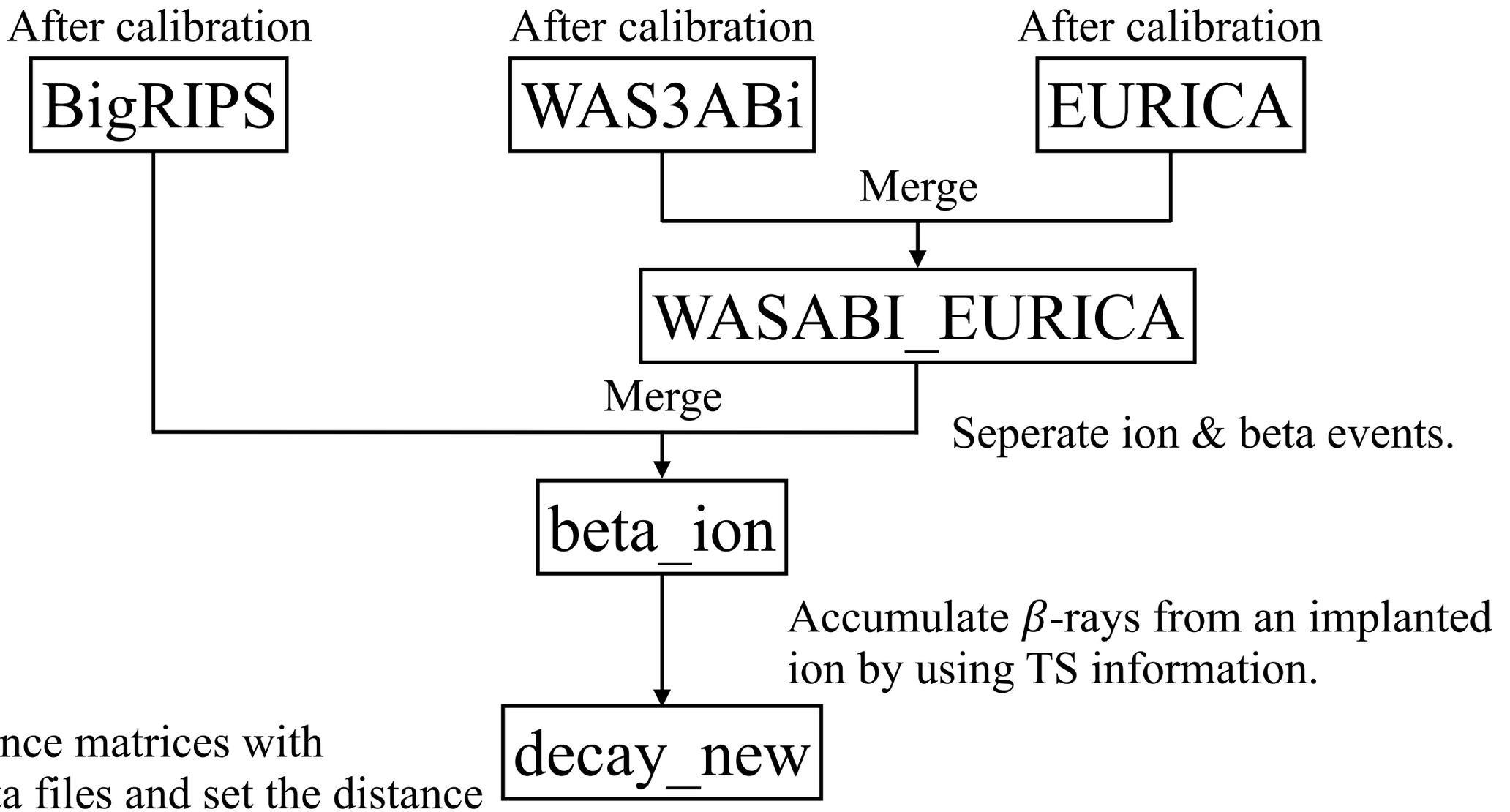
- Efficiency Calibration



$^{152}Eu + {}^{133}Ba$ sources

Analysis

- RIKEN Analysis Tool

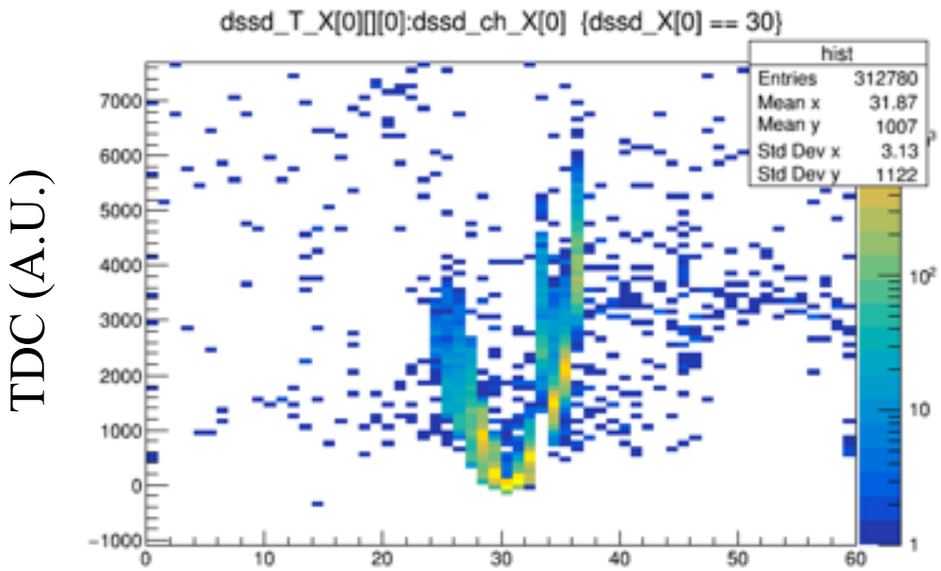


Analysis

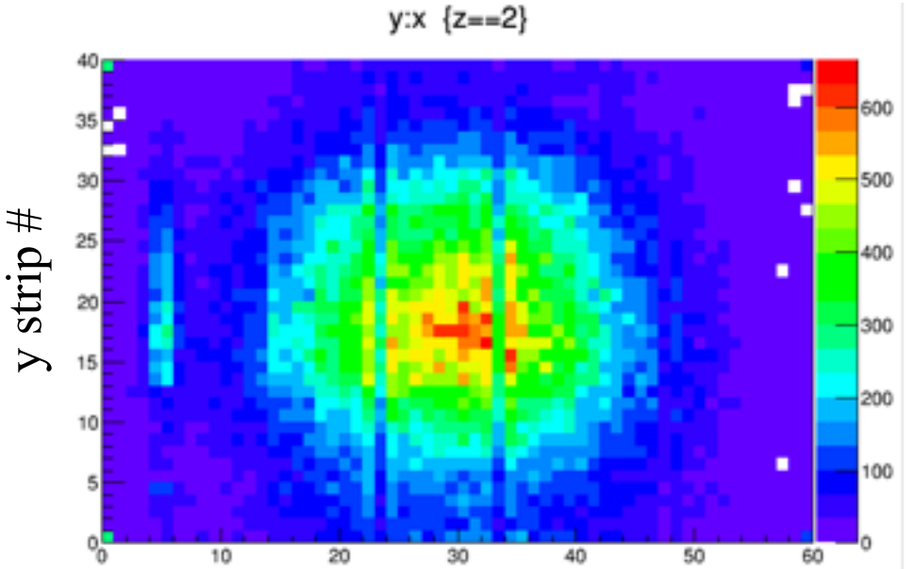
- WAS3ABi Analysis Process
  - Separate the ion and the β-ray events by using the F11 plastic scintillators.
  - Select good events and remove ghost signals by the TDC analysis.
  - Confirm the final implanted position of an ion and remove events with veto counters and the back stream plastic scintillator.
  - Track the β-ray events to reduce the background.

Analysis

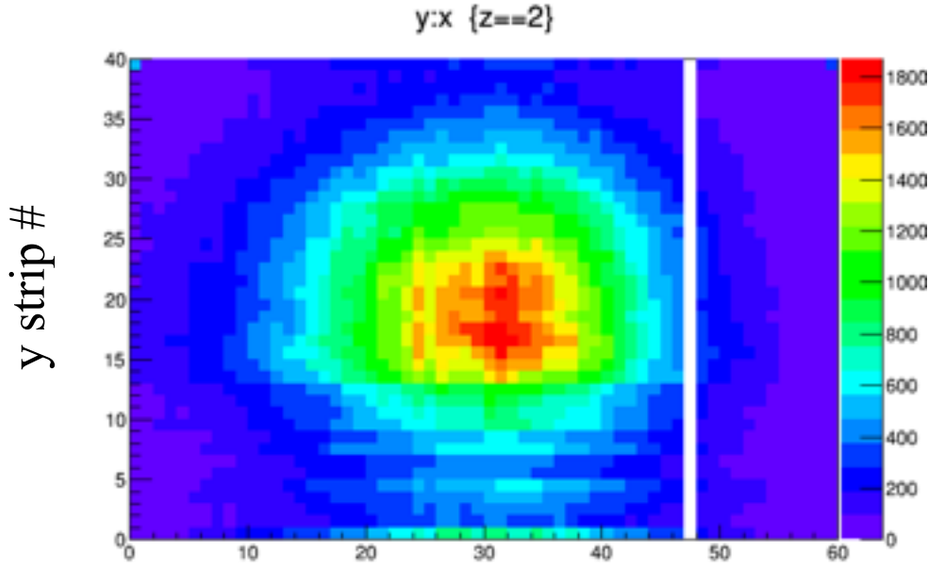
- WAS3ABi Analysis (Last 2 weeks process)



TDC for #30 x strip on DSSD#1



Ion Implantation on DSSD#3



β Implantation on DSSD#3

1. TDC Cut of Ion Implantation.
2. Separate the ion and the β-ray events.
3. Confirm the final implanted position.
4. Now trying to make decay data files.

* Only one run is shown in this slide.

Future Analysis and Plan

- Keep refining ‘SEPARATE’ and ‘BuildDecay’ macro to get personal data sets.

- Pause the physics analysis of ^{140}I internal structure.
  - Achieved to get the total emitted β-rays from the β-decay curve during the stay.
  - Confirmed the half-life and several energy levels.
  - Future plan : Assign the log ft value and the J^{π} for each level.

- Start the physics analysis of ^{140}Te internal structure which is urgent.