Calibration of the ^{32,36}S, ^{86}Kr on ^{112,124}Sn, ^{197}Au data taken on the FAUST array

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Systems of 45MeV/A ^{32}S on ^{112,124}Sn and ^{197}Au, 45MeV/A ^{36}S on ^{112,124}Sn, and 30MeV ^{86}Kr on ^{112,124}Sn and ^{197}Au were measured with the Forward Array Using Silicon Technology (FAUST) [1]. Calibration of the data set, including particle identification (PID) energy calibration of the Si-CsI telescopes, is in progress.

PID has been accomplished though the use of a linearization method. In this method, the distance between a point in question and the linearization line was calculated using a recently developed point to curve distance algorithm [2]. This method combined with the updated preamps installed in FAUST before the 2005-2006 run have led to isotopic identification for elements up to Z=14. Previously, isotopic identification on the FAUST Array was not possible above Z=8. Figure 1 shows the raw Si-CsI spectrum, the full spectrum linearized, and a zoomed in view of the beryllium peaks in the linearized spectrum.

Energy Calibration of the 68 Si-CsI telescopes comprising FAUST first requires calibration of the front silicon detector using a ^{228}Th source as well as other known points on the energy spectrum such as the energy deposited in the silicon detector from elastically scattered beam particles. Calibration of the CsI scintillator is then achieved through comparison with the Orsay energy loss tables using a formalism proposed by Larochelle which models the light output from a CsI crystal based on the energy deposited [3].

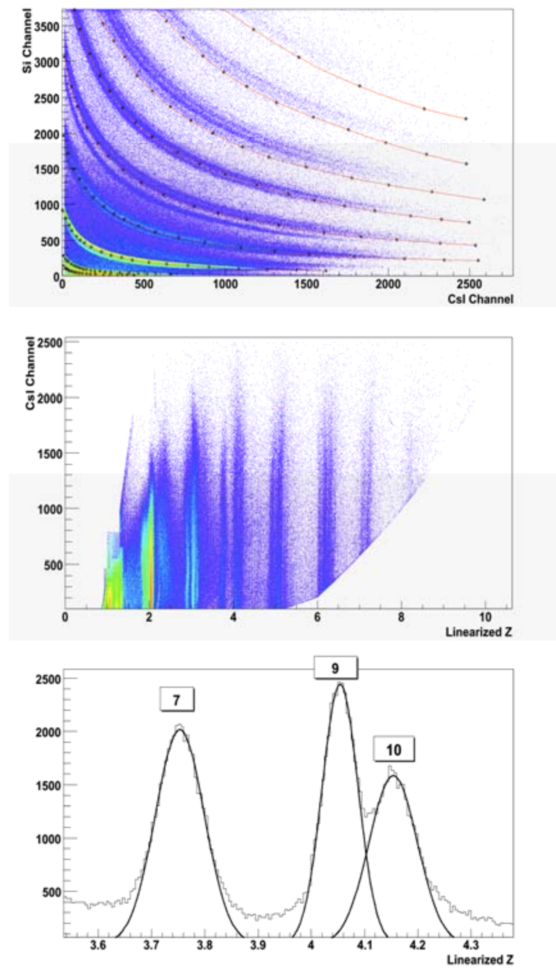

Figure 1. (Top) Raw Silicon-CsI spectrum for FAUST detector 52 in ring D. (Middle) Linearized raw spectrum for detector 52 plotted against raw CsI channel. (Bottom) Linearized raw spectrum zoomedin to show the isotopes of beryllium. Gaussians have been fit to the peaks. The number above each peak identifies the isotope of Beryllium.

[1] F. Gimeno-Nogues *et al.,* Nucl. Instrum. Methods Phys. Res. **A399**, 94 (1997).
[2] L. W. May *et al.*, *Progress in Research*, Cyclotron Institute, Texas A&M University (2007-2008), p II-26.
[3] Y. Larochelle *et al.*, Nucl. Instrum. Methods Phys. Res. **A348**, 167 (1994).