Procedure of alpha source calibration

1. Load 1D spectra (Current/spectcl/def-files/alpha_source/1d_en_all.tcl) for EF and EB strips of all the telescopes. (x parameter: hira.telex.ef/eb.ene.XX).

2. Apply a **fmult1** gate to all the spectra (Current/spectcl/def-files/alpha_source/gates_fbmult1_ef_eb.tcl). "fmult1" gate is an AND gate of "efmult1" (physics.ef.mult {1.000 1.000}) and "ebmult1" (physics.ef.mult {1.000 1.000})

3. To check the spectra, use the window files Current/spectcl/def-files/alpha_source/ene.hira.???.win.

4. After sorting, write spectra file (HiRASpecTcl control) and save it as asc file (/Current/spectcl/histo-files)

5. Run **SpecTcl2Root** (/Current/spec/) to convert the asc file into the root file (SpecTcl2Root ~/Current/spectcl/histo-files/XXX.asc ~/Current/sical/ThSource/newall/XXX.root)

6. Edit the input_2.dat (/Current/sical/ThSource/newall/).
   a. Change the input filename : /user/02023/Current/sical/ThSource/newall/runXXX.root
   b. Change the parameters : Teleno eb/ef compression_factor evenmin evenmax oddmin oddmax sigma nNeed .(eg , "0 eb 4 100 4000 100 4000 5 5 ")

7. Type **ThSourceChip input_2.dat** to call program to perform fitting

8. Three files are generated : runXXX.vdef /ps/ res.ps (/Current/sical/ThSource/newall)

9. Load the summary spectra for EF and EB of all the telescopes with gate file applied on it (Current/spectcl/def-files/alpha_source summary_sical.tcl). Load the vdef file in the definition area of SpecTcl (Current/spectcl/def-files/alpha_source/runXXX.vdef).

Procedure of CsI calibration

1. Load 2D spectra for all the telescopes with Si EB/EF energy verse CsI energy.

2. Apply the gate and load the vdef file generated from the calibration of alpha source.

3. After sorting, get the CsI channel numbers (x coordinate) which correspond to 12, 10, 8 and 6 MeV of Si EB/EF energy for proton, deuteron and triton groups respectively. (He isotopes should also be considered if the statistics are good enough)

4. Calculate the slope and offset (Ask Sergei for help).