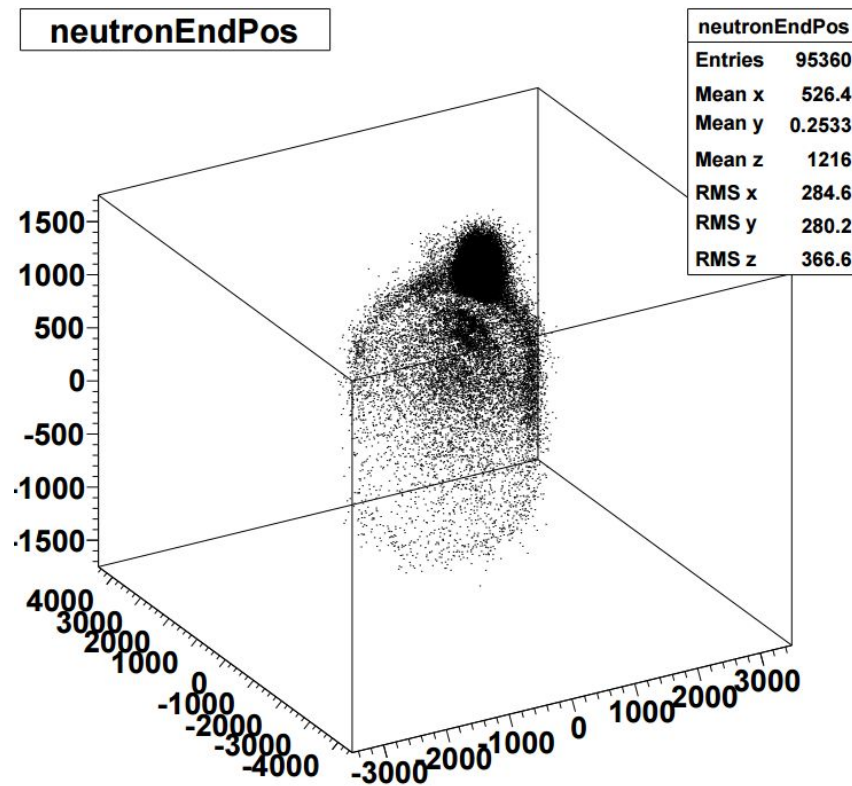


Neutron Calibration Sim Update



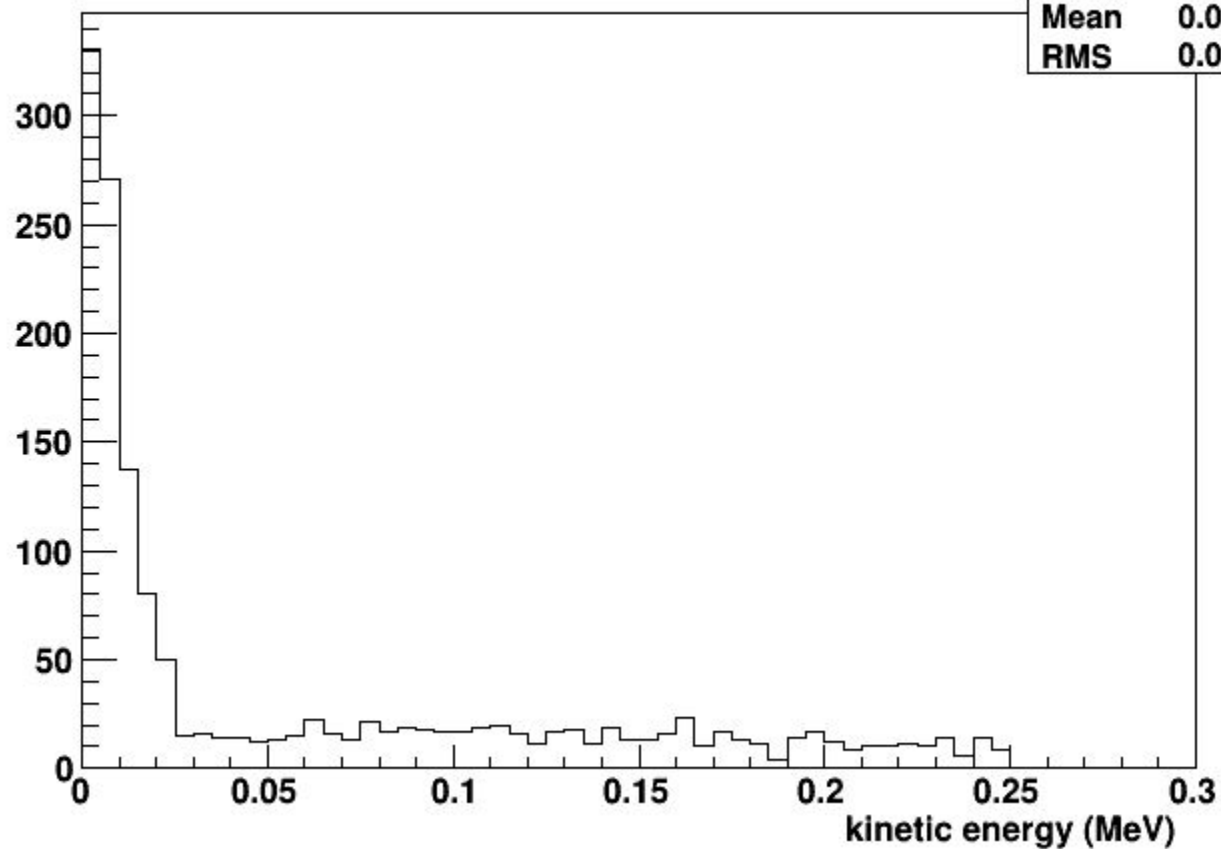
Z is the vertical axis and all axes in mm

Cuts

- PE between 20-500
- Lrecoil > 0.373
- Fprompt > 0.681
- Radius < 400.0 mm
- Kinetic Energy < .25 MeV

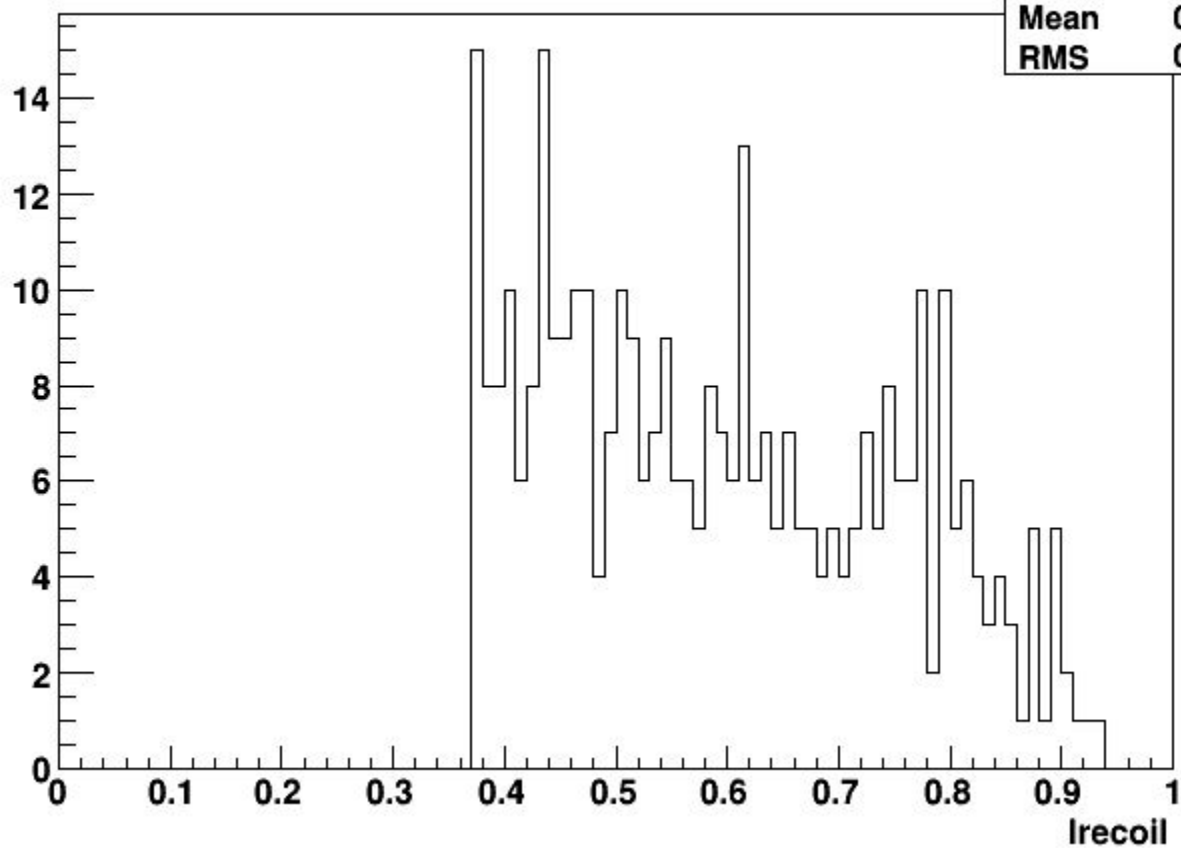
Number of Events	Number of Triggered Events	Pass PE Cuts	Pass Lrecoil Cuts	Pass Radial Cuts	Pass Fprompt Cuts	Pass PE, Lrecoil, and Fprompt	Pass All
200000	3186	838	360	1756	772	700	28

Kinetic Energy



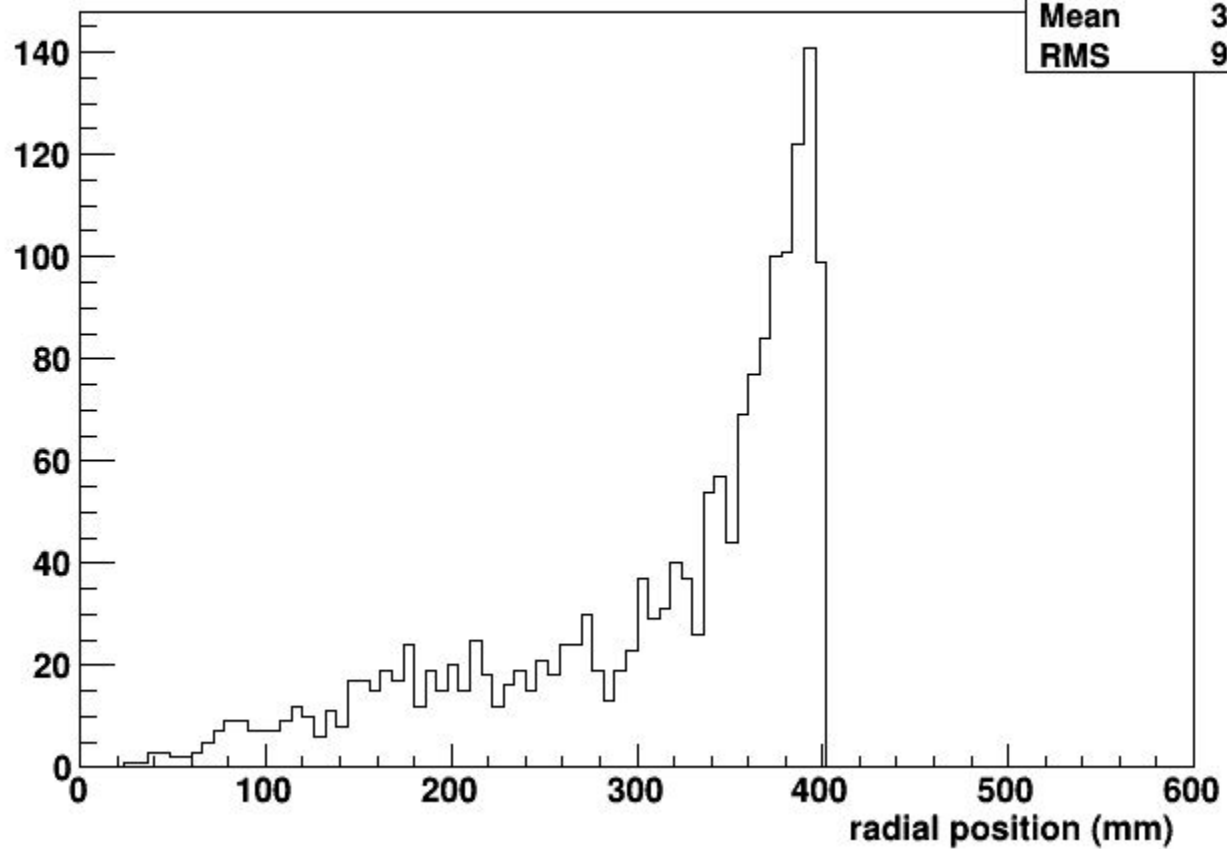
Kinetic energy < 0.25 MeV

lrecoil

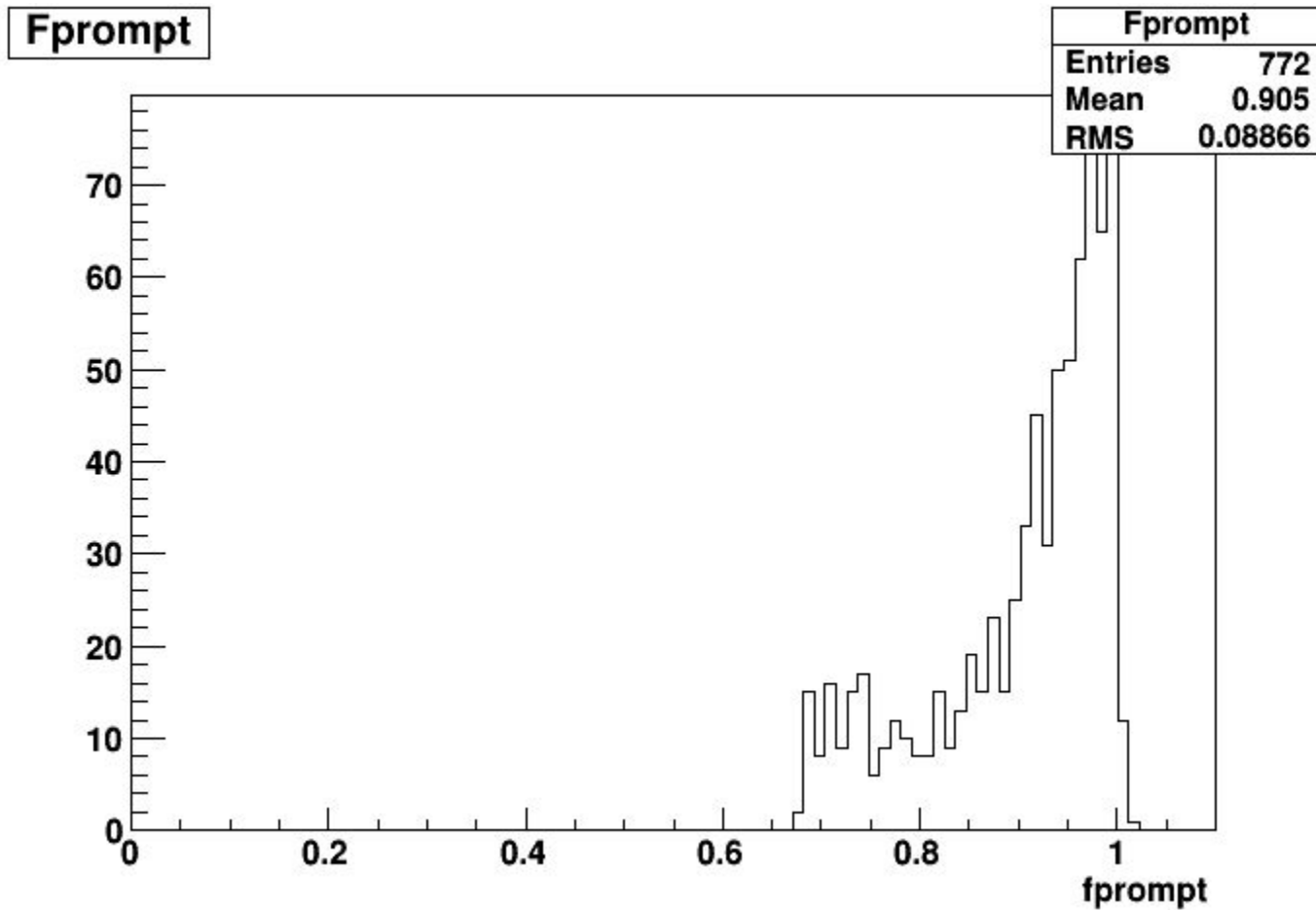


$\text{lrecoil} > 0.373$

Event Distance Away From Origin

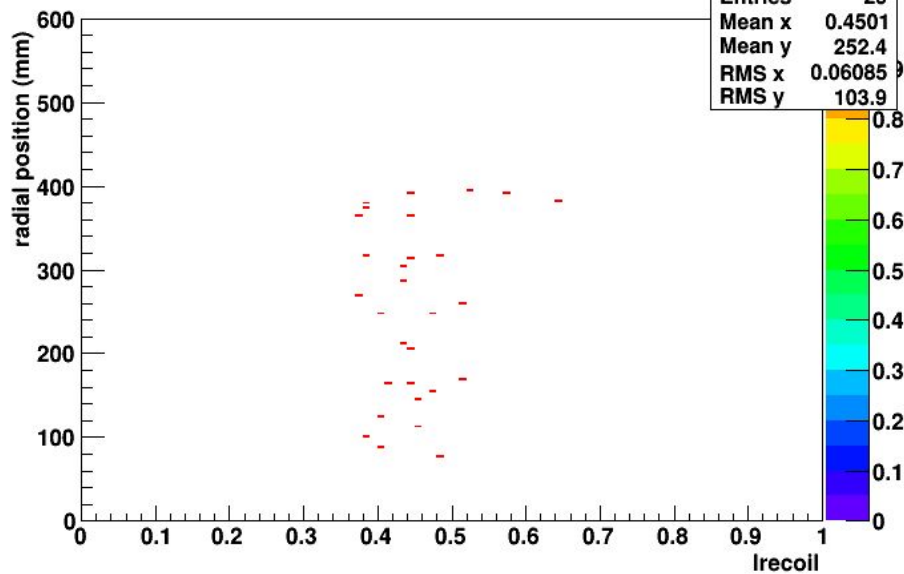


radial position < 400.0 mm

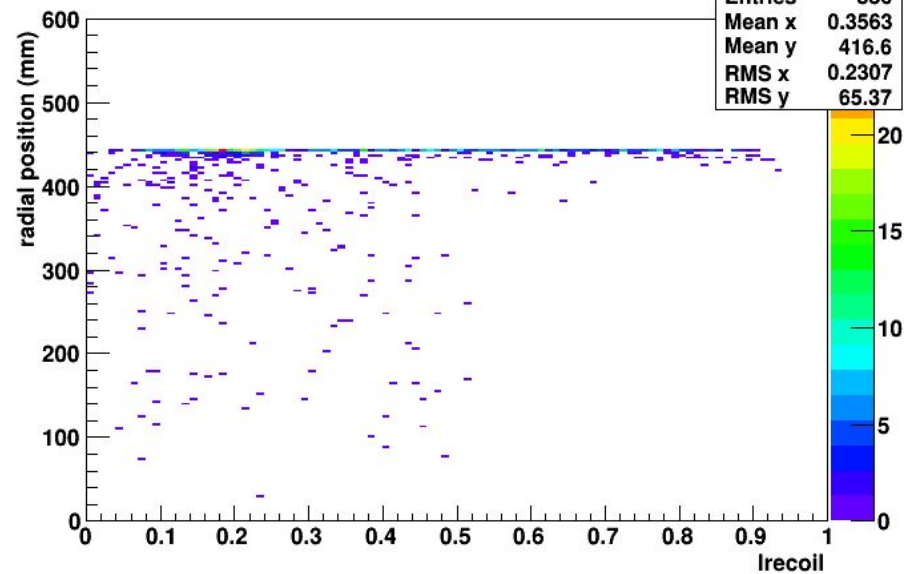


$\text{fprompt} > 0.681$

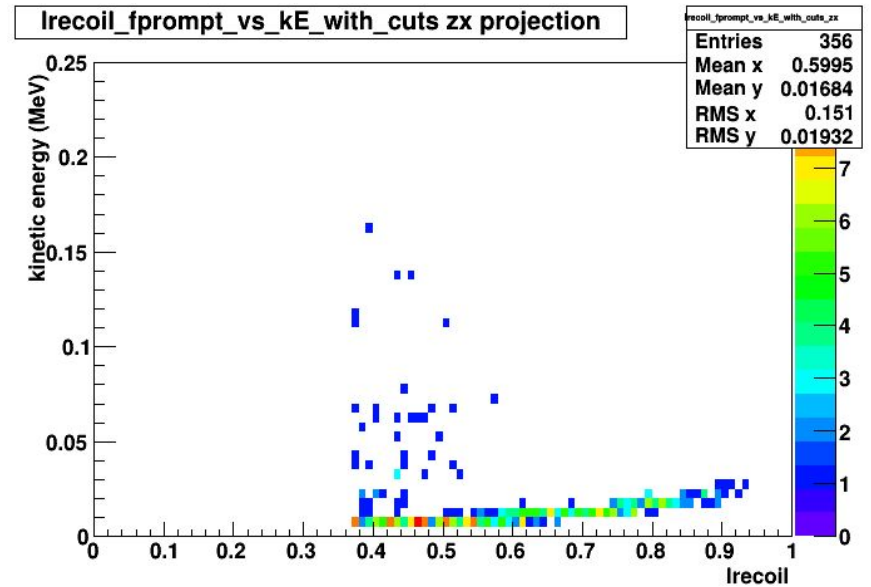
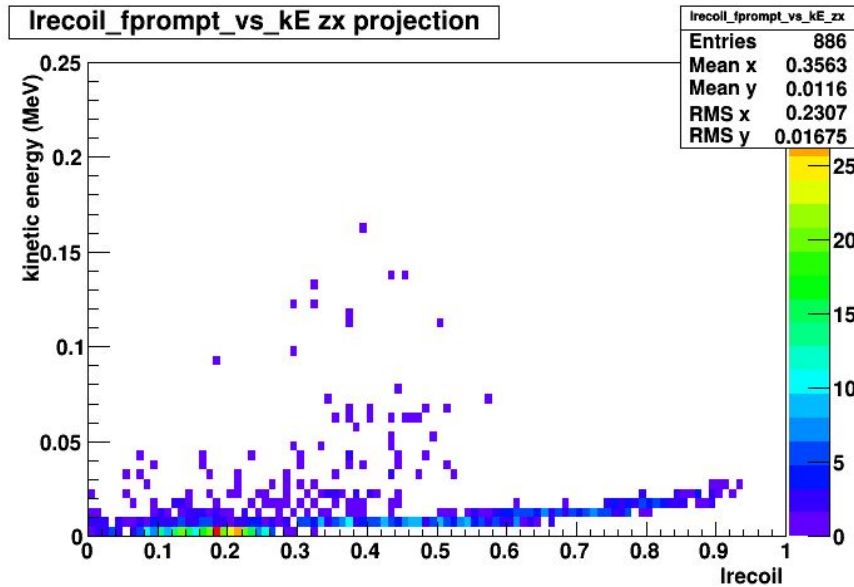
lrecoil_fprompt_vs_pos_with_cuts zx projection



lrecoil_fprompt_vs_pos zx projection

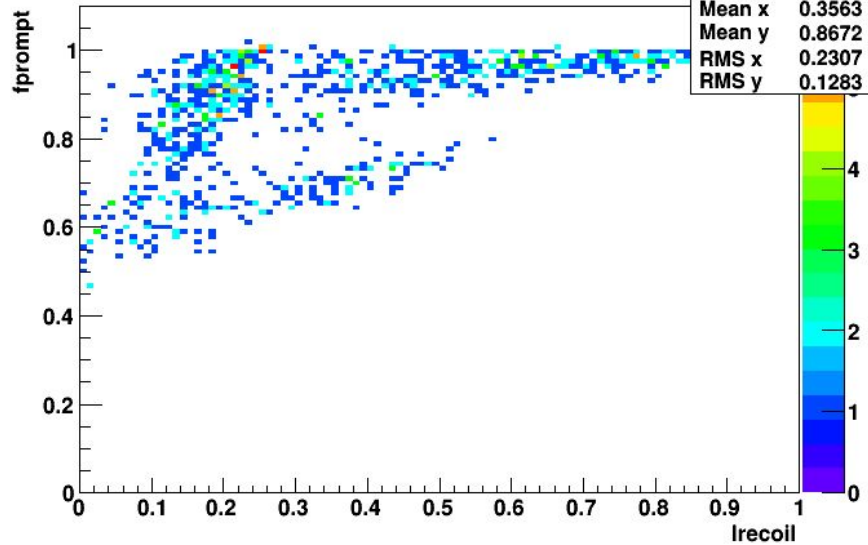


$\text{lrecoil} > 0.373$, $\text{fprompt} > 0.681$, $\text{radial position} < 400.0 \text{ mm}$

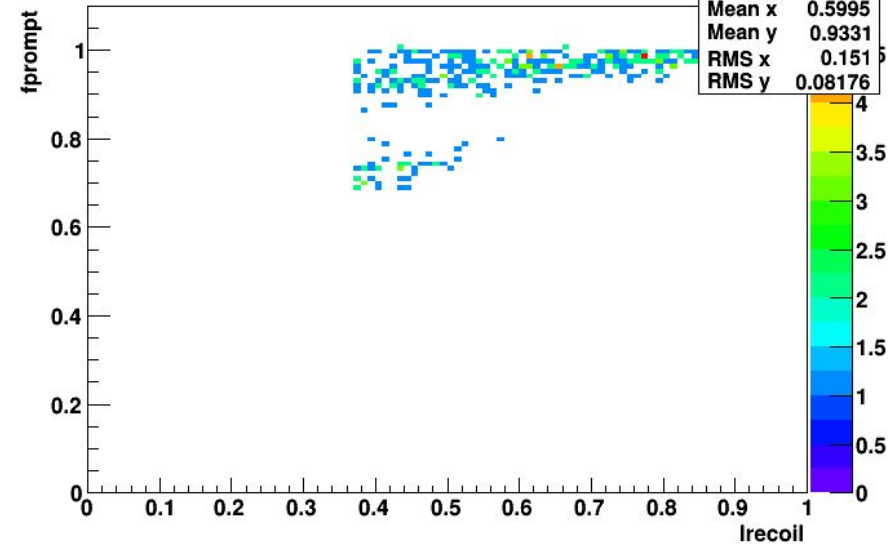


$\text{lrecoil} > 0.373$, $\text{fprompt} > 0.681$, $\text{kinetic energy} < 0.25 \text{ MeV}$

lrecoil_fprompt_vs_kE yx projection

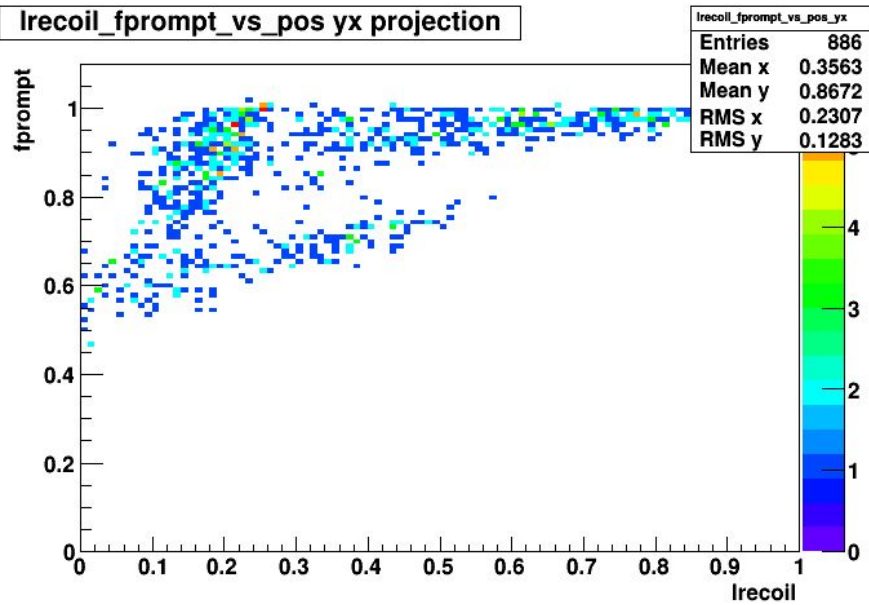


lrecoil_fprompt_vs_kE_with_cuts yx projection

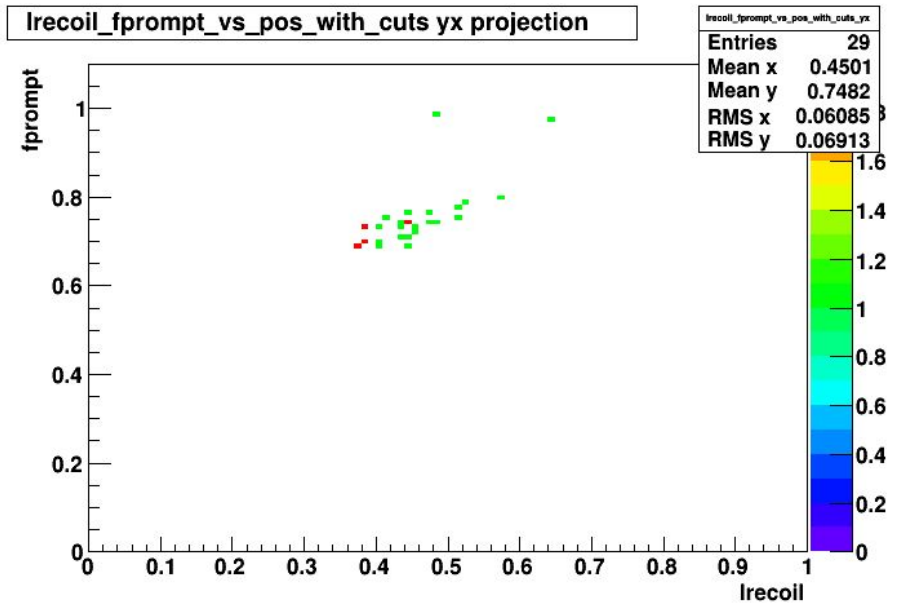


$lrecoil > 0.373$, $fprompt > 0.681$, kinetic energy < 0.25 MeV

lrecoil_fprompt_vs_pos yx projection

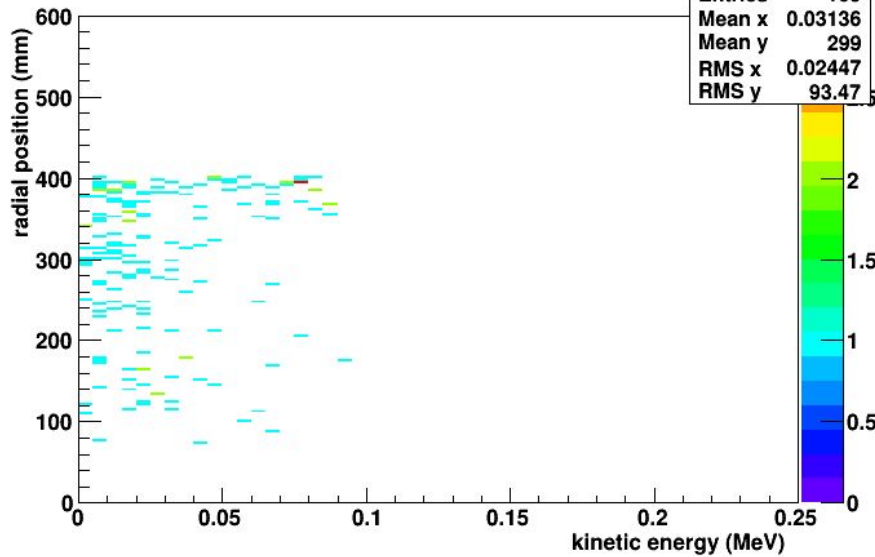


lrecoil_fprompt_vs_pos_with_cuts yx projection

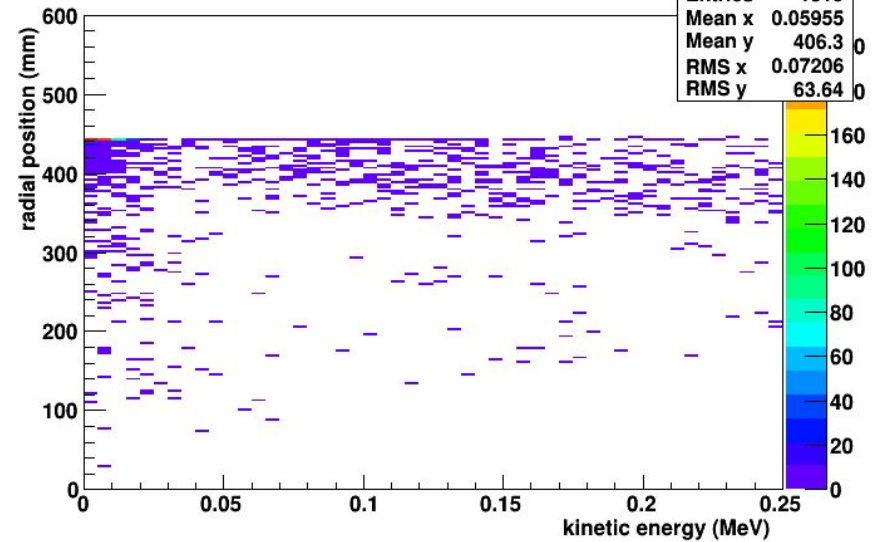


$lrecoil > 0.373$, $fprompt > 0.681$, radial position < 400.0 mm

totPE_kE_pos_with_cuts zy projection

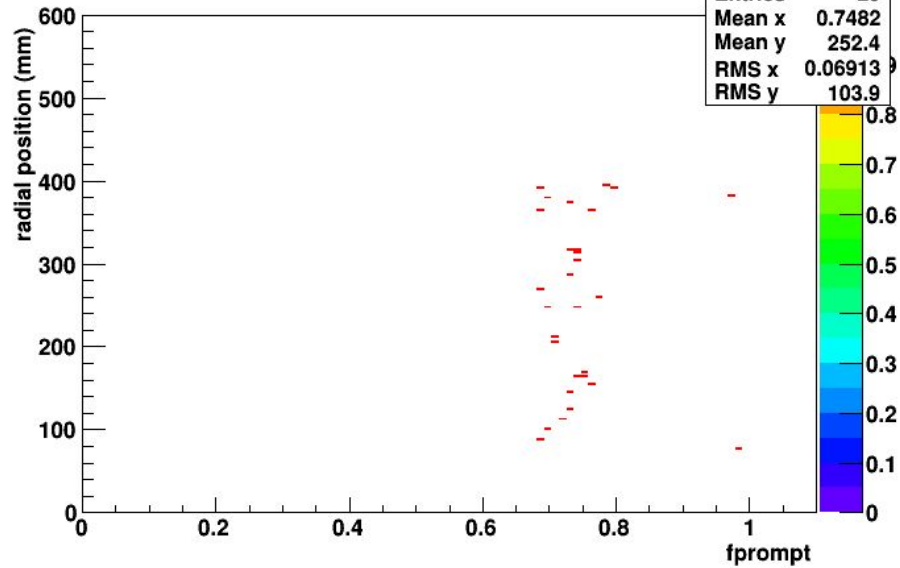


totPE_kE_pos zy projection

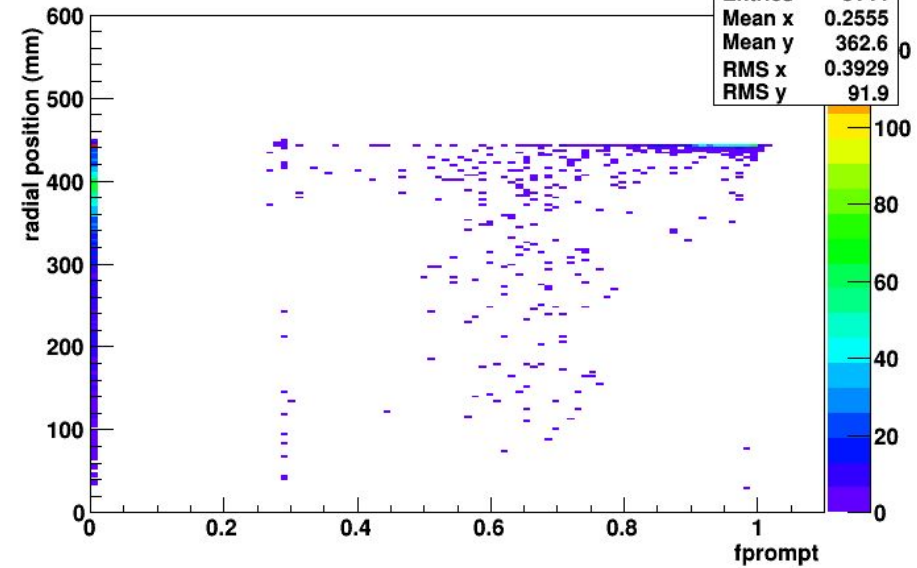


20 < Total photoelectrons < 500, kinetic energy < 0.25 MeV,
radial position < 400.0 mm

lrecoil_fprompt_vs_pos_with_cuts zy projection

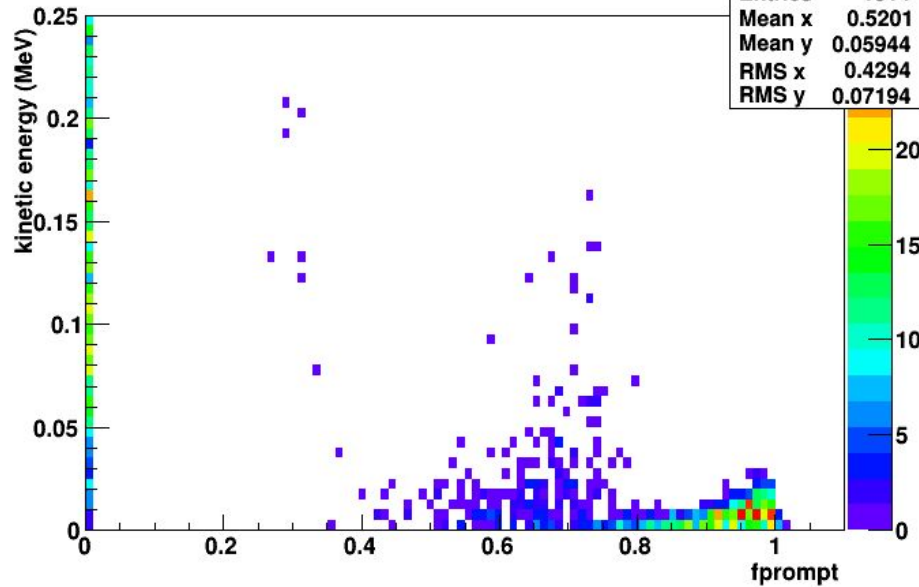


lrecoil_fprompt_vs_pos zy projection

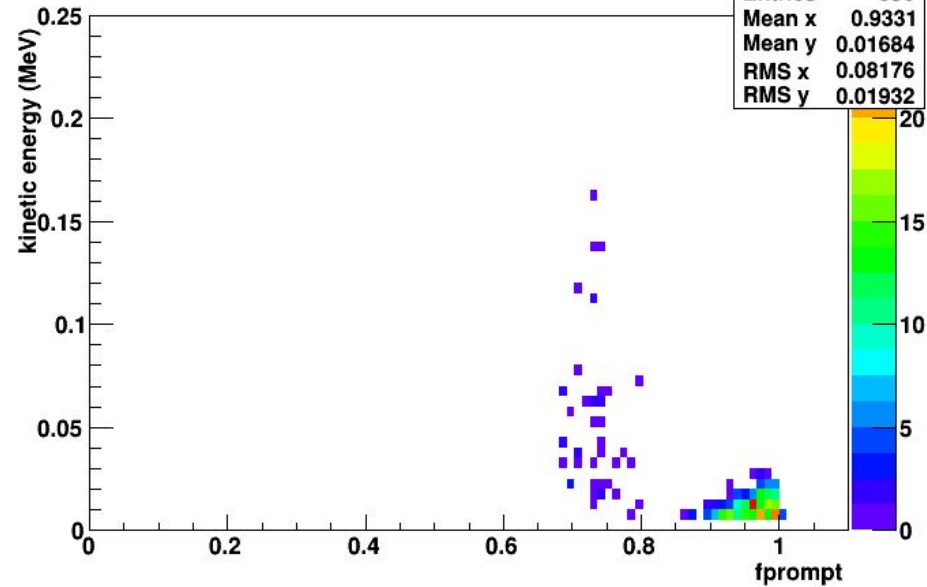


20 < Total photoelectrons < 500, kinetic energy < 0.25 MeV,
radial position < 400.0 mm

lrecoil_fprompt_vs_kE zy projection



lrecoil_fprompt_vs_kE_with_cuts zy projection



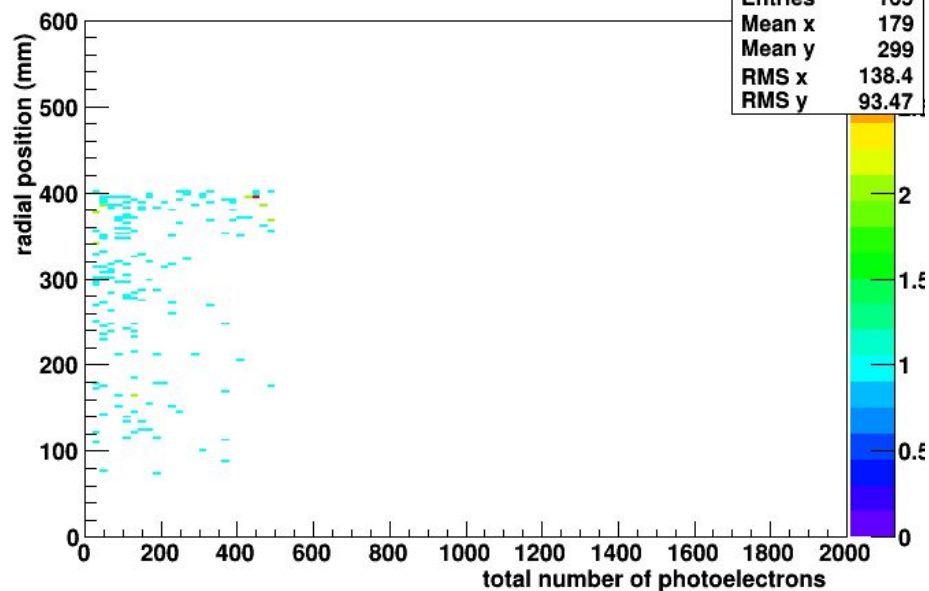
20 < Total photoelectrons < 500, kinetic energy < 0.25 MeV,
radial position < 400.0 mm

Future Work

- Testing how the opening angle of the neutron generator affects number of triggered events
- Looking at the relations between hit_time and other variables
- Investigating weird counting phenomena with cutoffs.
- Testing changes with cerenkov light disabled.

Backups

totPE_kE_pos_with_cuts zx projection



totPE_kE_pos zx projection

