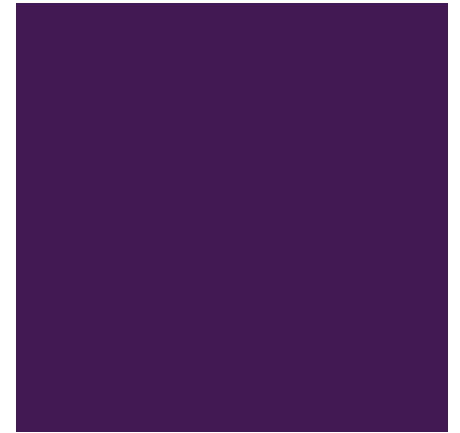
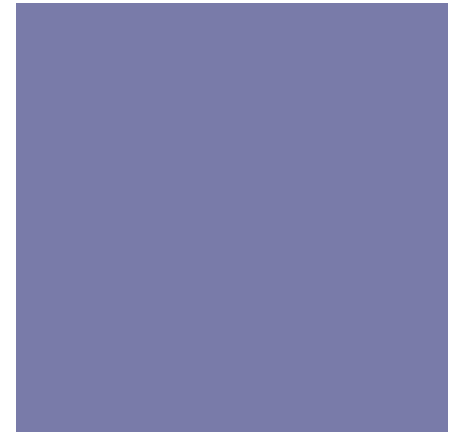




Full Simulation S1/S2



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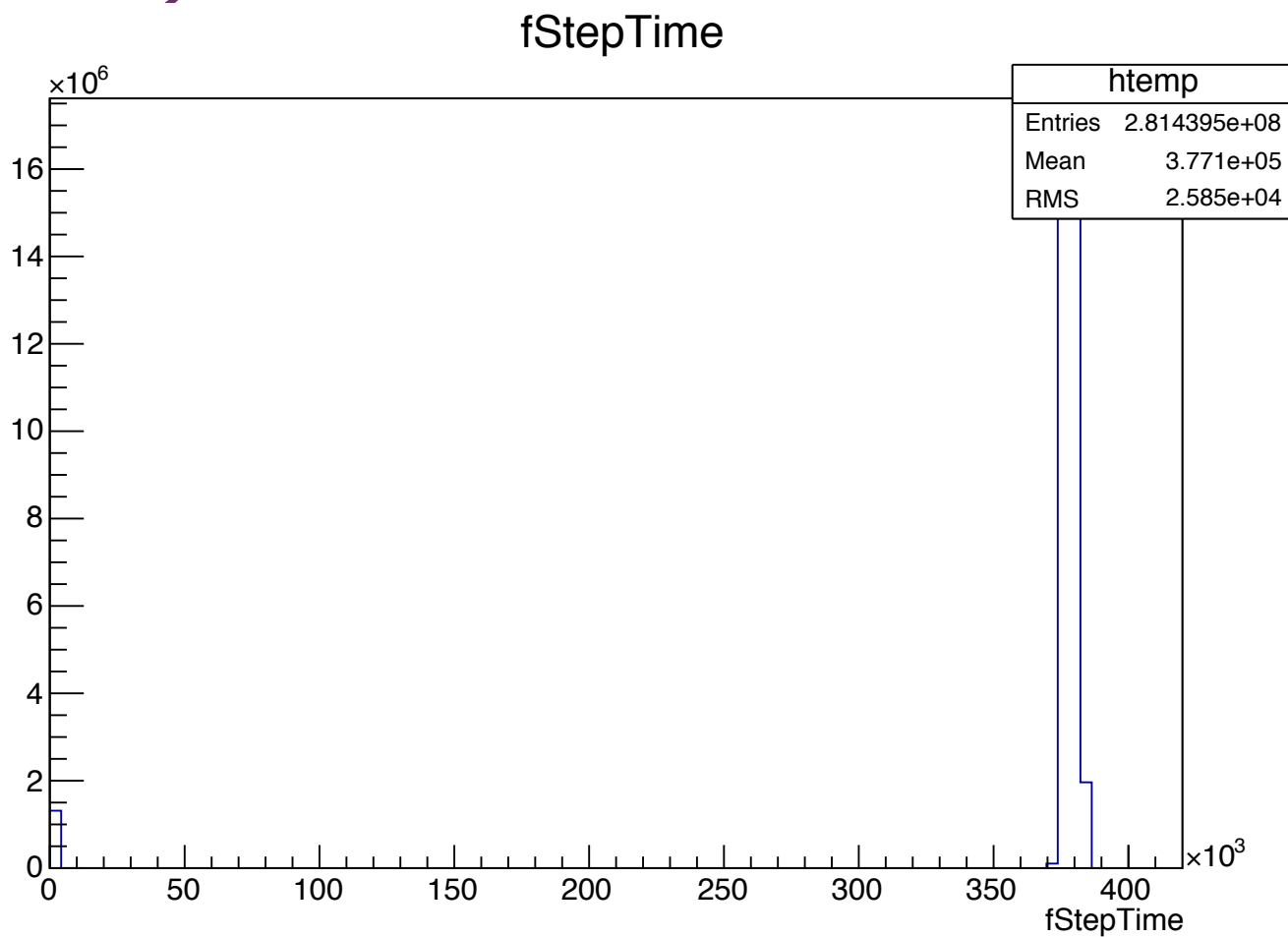
Introduction

- Consider 2 simulations :
 - Gamma 100 KeV at the center of the detector : 1000 events
 - Electron 5KeV at different positions in the detector
- Input cards are attached as txt files on the agenda page

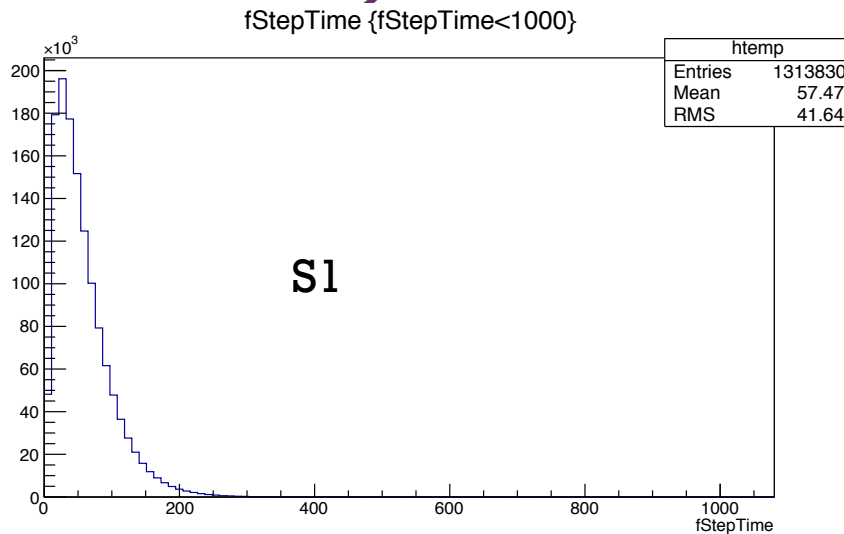
+

100 KeV gamma source (1000 events)

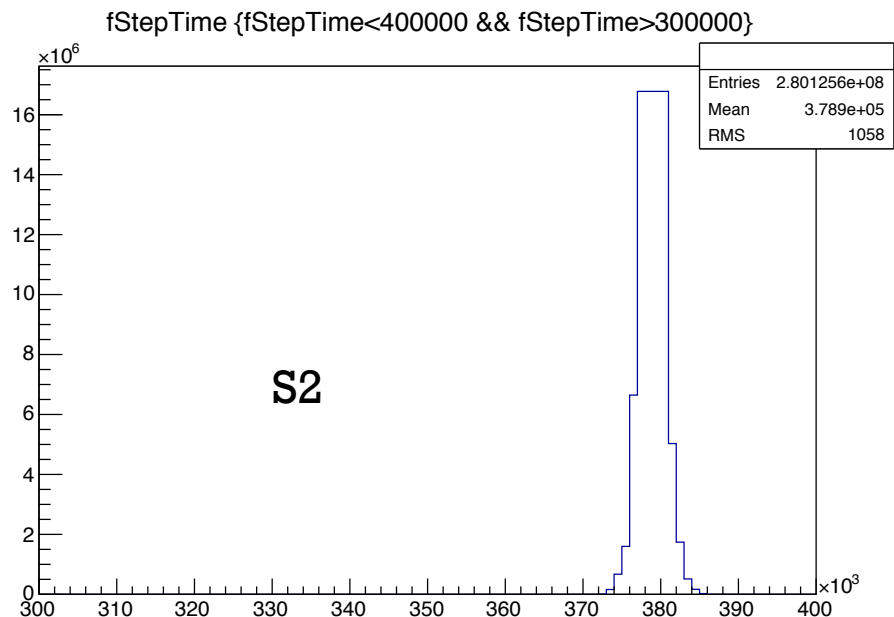
3



+ 100 KeV gamma source (1000 events)



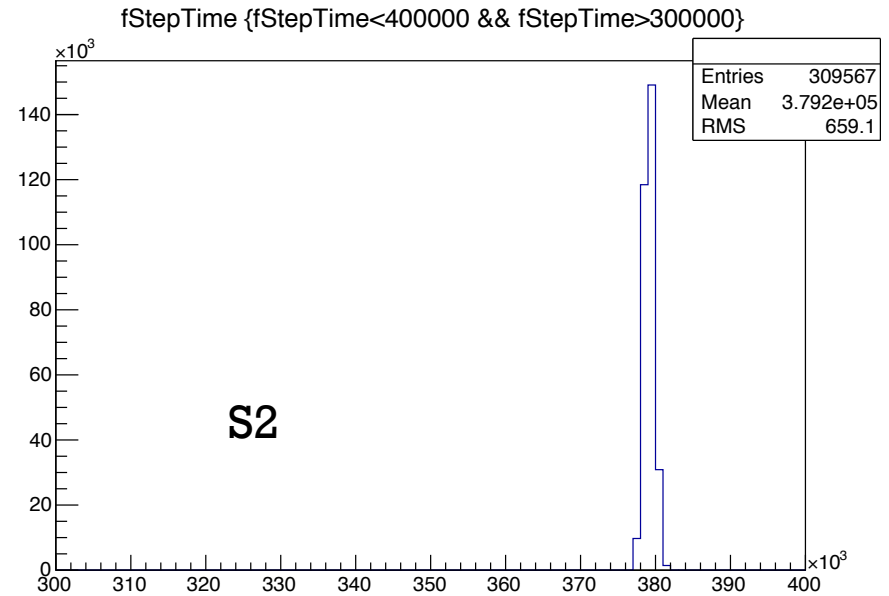
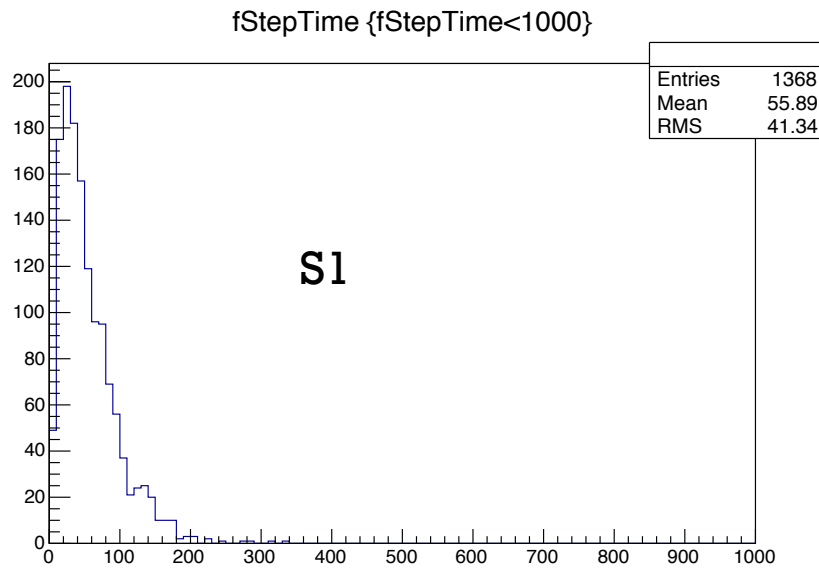
Since gamma source should do multiple scatter, hence
We should see 2 S2 for the gamma source, which we don't see..??



+

100 KeV gamma source (1 event)

5



+ Backup



Photon_Attenuation length vs energy

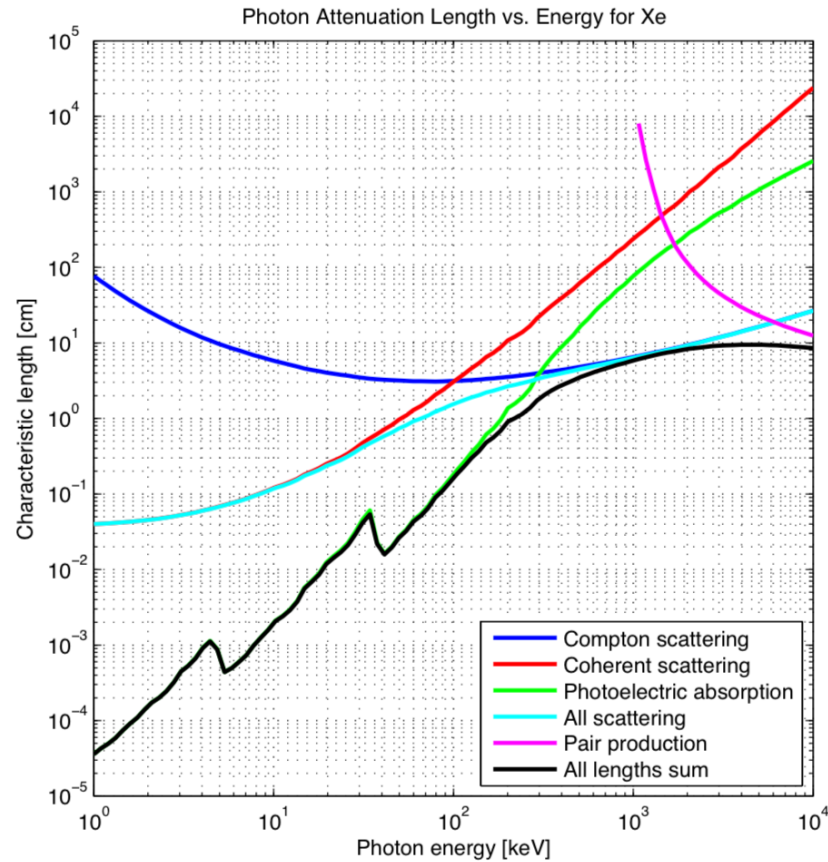


Figure 2.1: Photon attenuation length (mean free path) for γ rays in liquid Xe, as a function of energy. The mean free path is broken down into various energy deposition processes. Data is taken from [87]. (LUX Matlab function gamma_length.m.)

^{238}U Chain

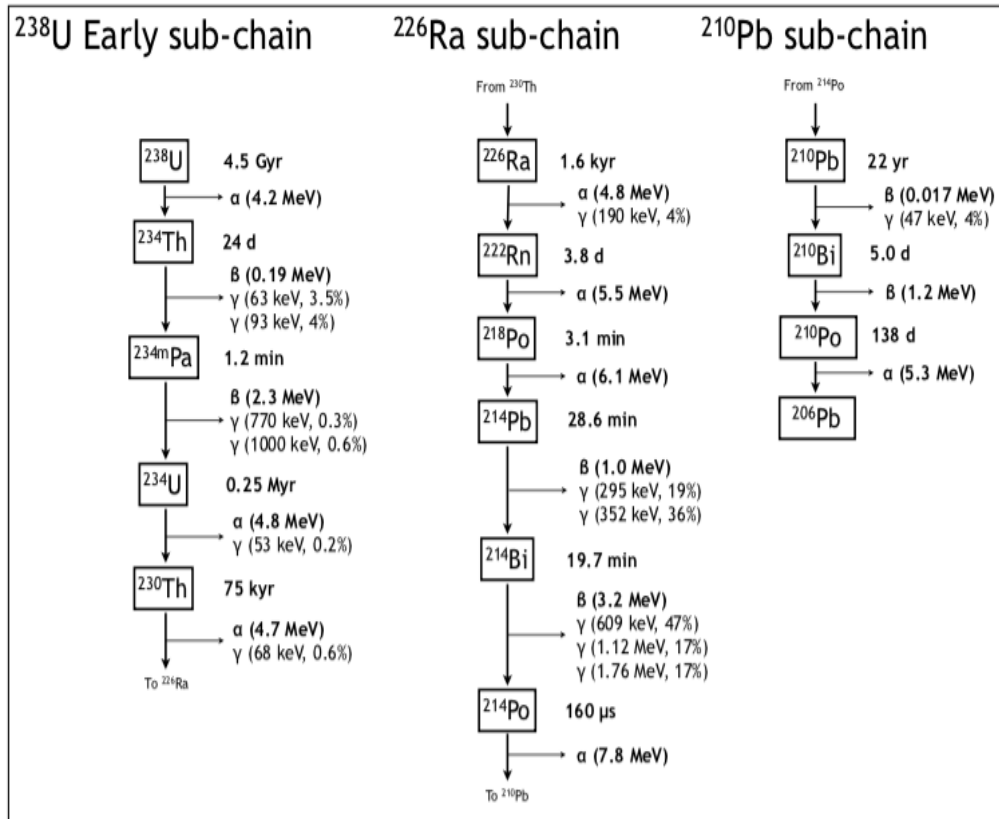


Figure 6.1: The decay chain for ^{238}U . The decay chain is broken into three sub-chains: the ^{238}U early sub-chain, the ^{226}Ra sub-chain, and the ^{210}Pb sub-chain. Isotopes are shown with their half-lives and probability for α or β emission, if not 100%. Decays with probability <1% are not shown. Alpha or β emission is listed under each isotope, with the mean α energy or β decay endpoint given. Energies and intensities are listed for γ emission with intensity >1%, with the exception of the ^{238}U early chain which lists γ rays with intensity >0.1%. Data from [135].



Glossary

- Half Life = It is the time required for the disintegration of one half of the radioactive atom that are present when measurement starts.
- Disintegration = Each occurrence of a nucleus emitting particles or energy is referred to as a disintegration. The number of disintegrations per unit time is referred to as activity(rate of emission) of a sample.