

# Mean Field Generator

## MF Generator

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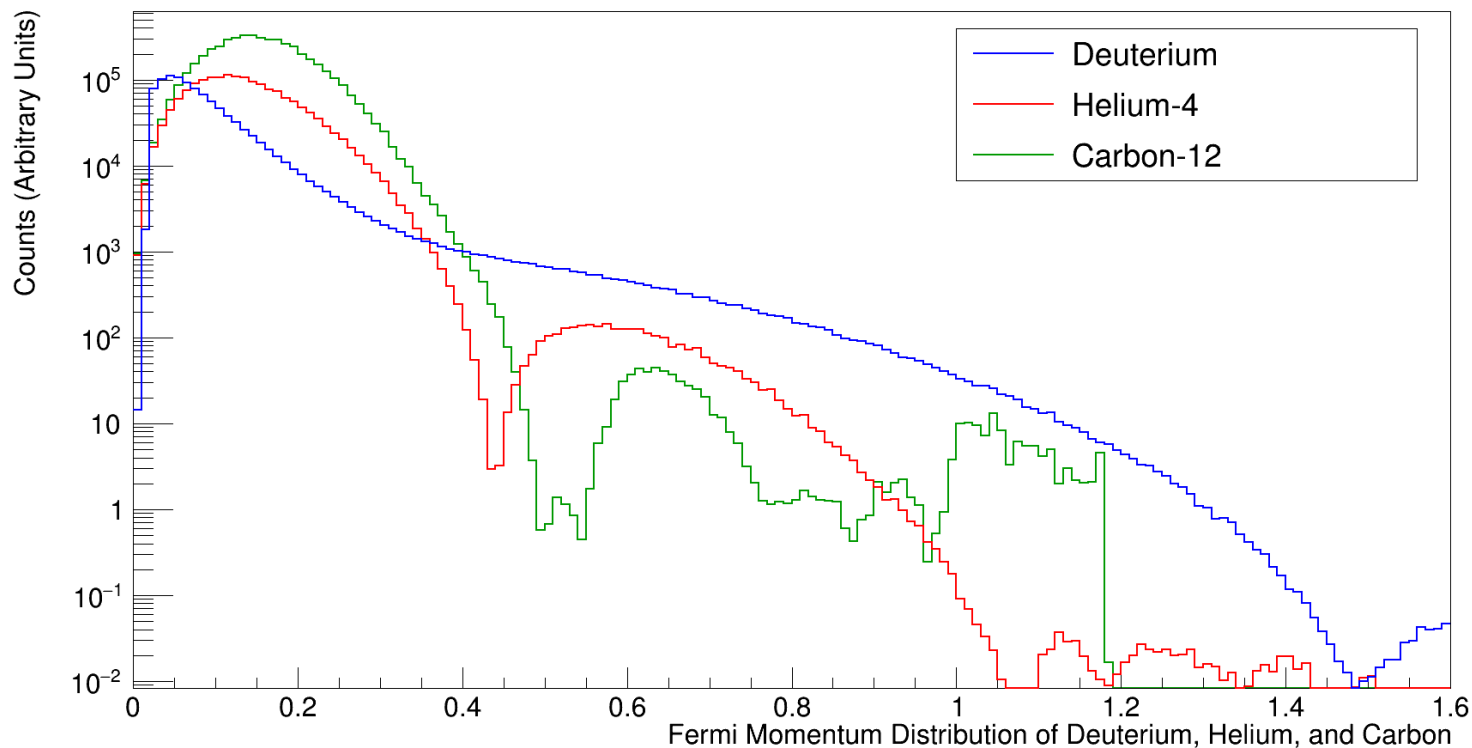
...

 **JacksonPybus** Added Carbon to MF generator.

fd851af · 2 years ago  History

Name	Last commit message	Last commit date
 ..		
 AV18_deut.h	Implemented nuclear motion for 2H and 4He.	3 years ago
 C12_MF_New.hh	Added Carbon to MF generator.	2 years ago
 He_n.h	Implemented nuclear motion for 2H and 4He.	3 years ago
 He_p.h	Implemented nuclear motion for 2H and 4He.	3 years ago
 nucleus.h	Added Carbon to MF generator.	2 years ago

# Fermi Momentum distribution used in the simulation

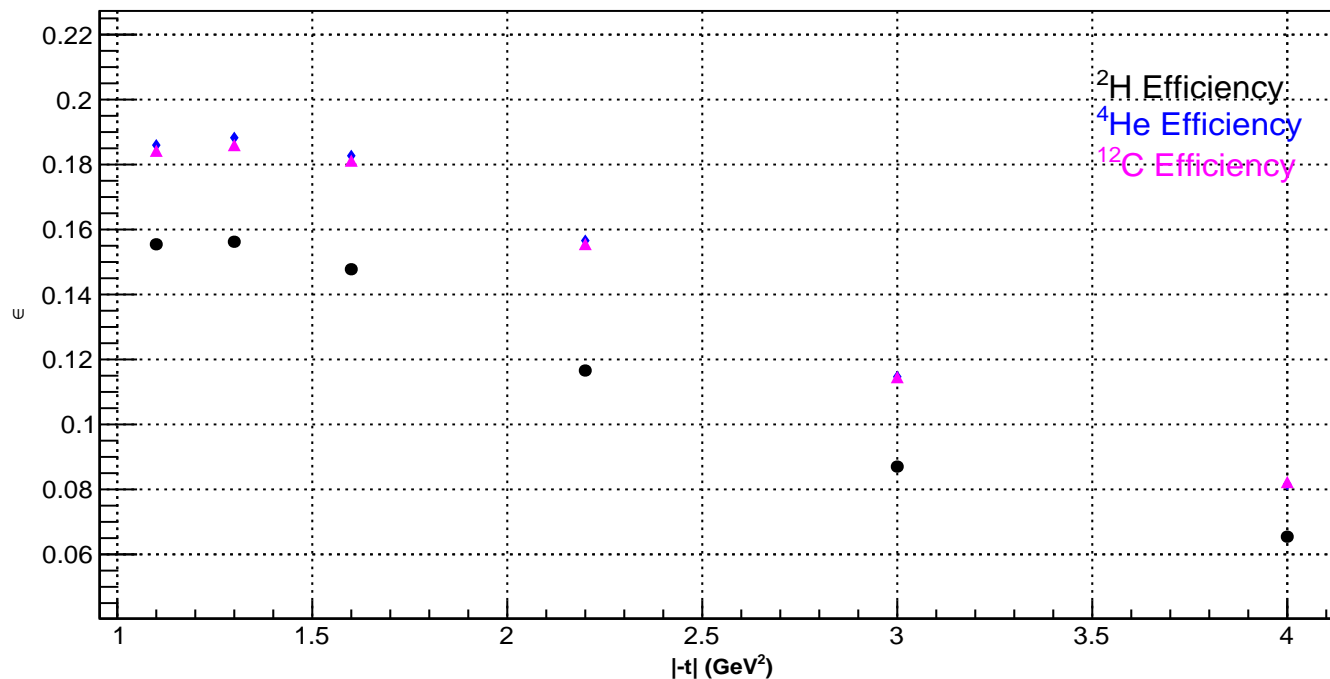


Generated  $10^6$  events.

**Correction factor**  
Deuterium = 1.00  
Helium = 0.84  
Carbon = 0.81

$$\text{Correction Factor} = (\text{Number of detected events}) / (\text{Number of generated events} \times \text{Atomic Number})$$

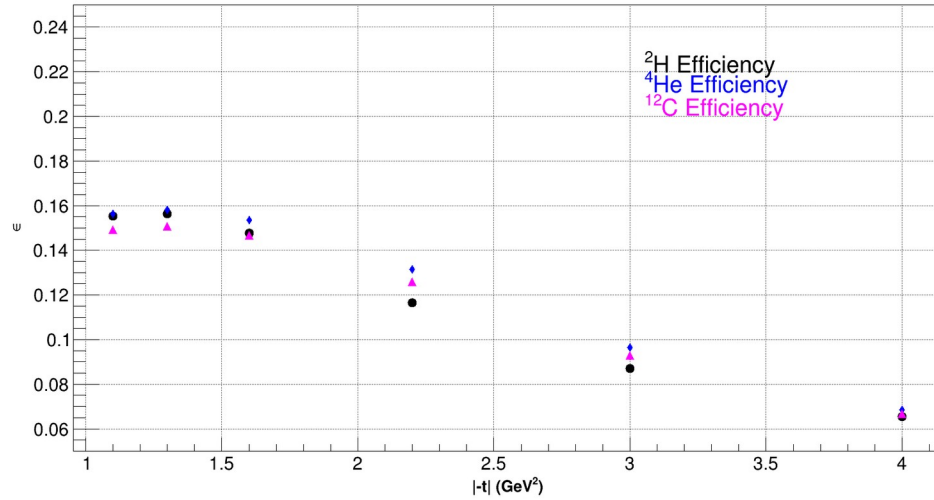
# Efficiency: Before Applying Correction



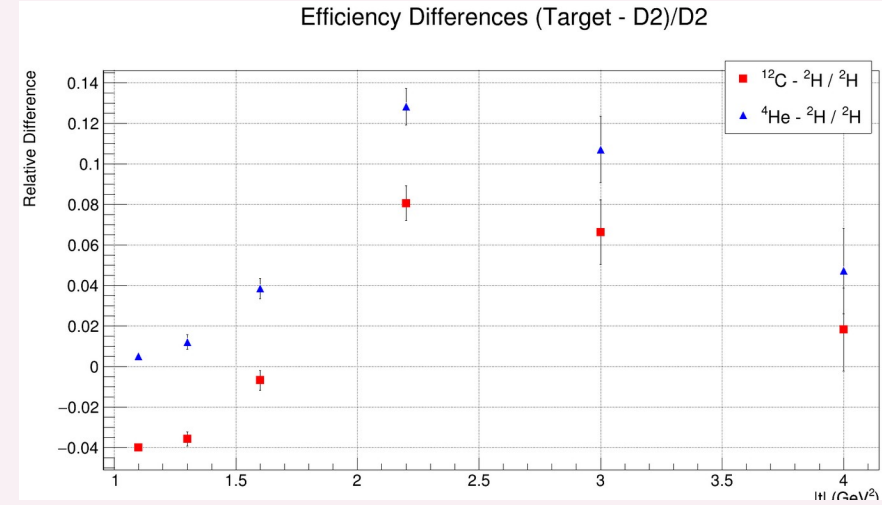
Note: Efficiency was calculated as the ratio of reconstructed events to thrown events.

Thrown events do not include any selection cuts; in particular, no missing momentum cut was applied to the thrown events.

# Efficiency After Applying Correction



Corrected Efficiencies



Uncertainty in efficiency for events with  $P_{\text{miss}} < 250$  MeV (Deuterium) and  $P_{\text{miss}} < 350$  (Helium and Carbon).