

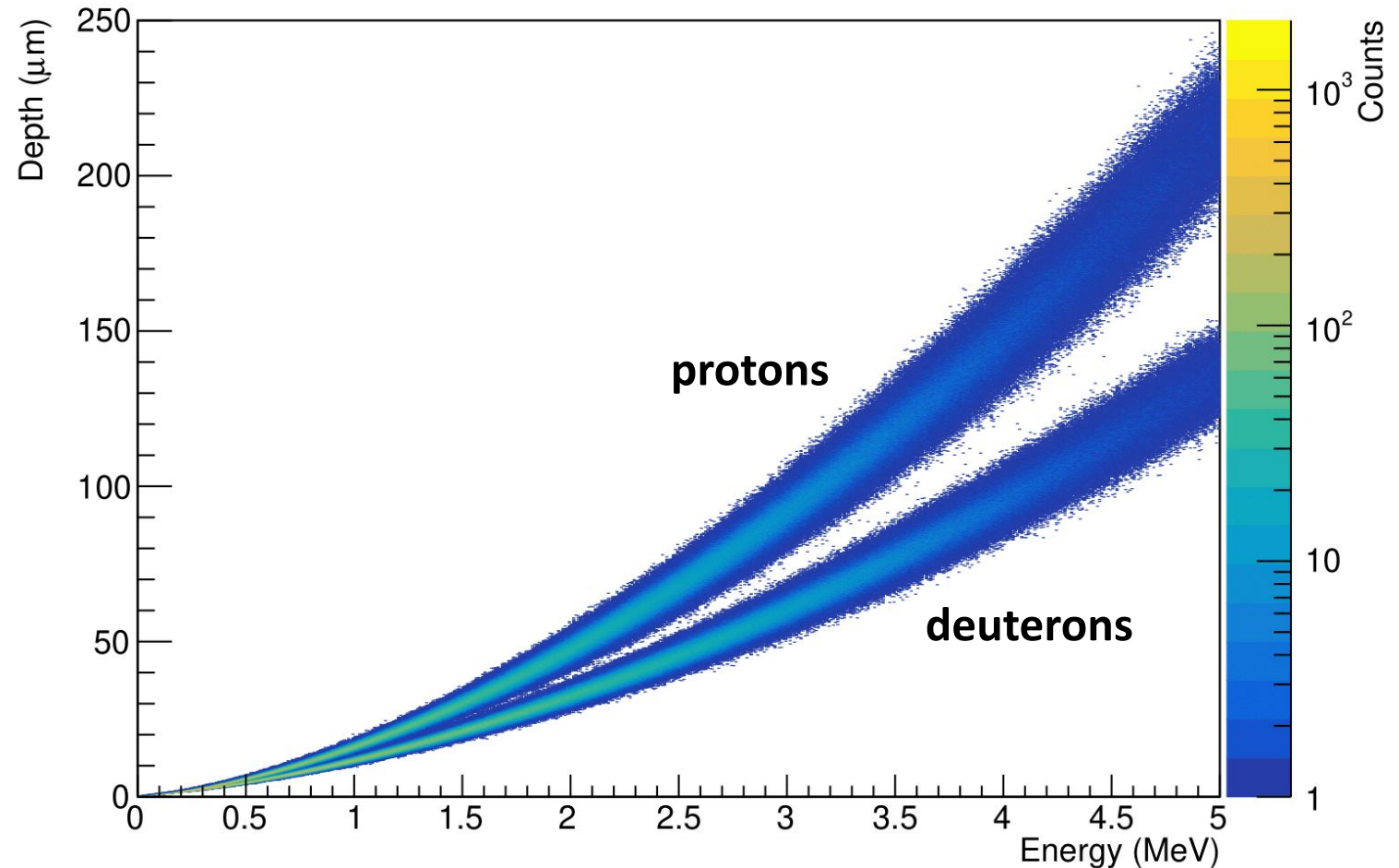
Ideal Case



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Ideal Case, All Particles at 90°, 10% Depth Error

- An ideal scenario where particles all hit the detector head-on, proton and deuteron branches are easily distinguishable.

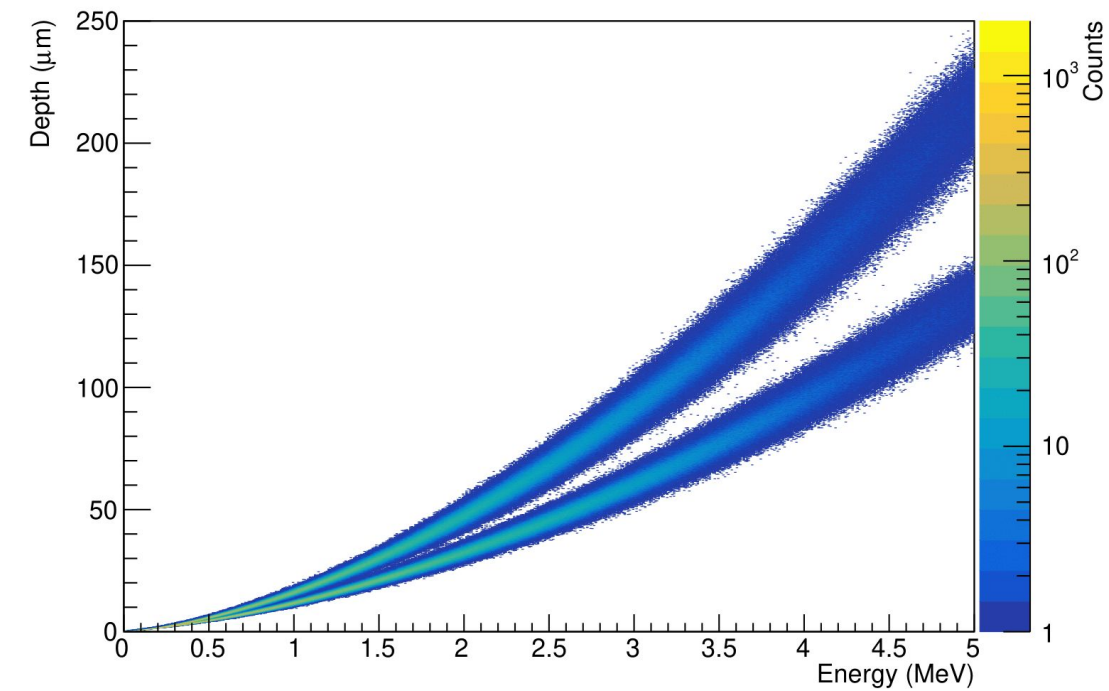


Projection onto Y Axis

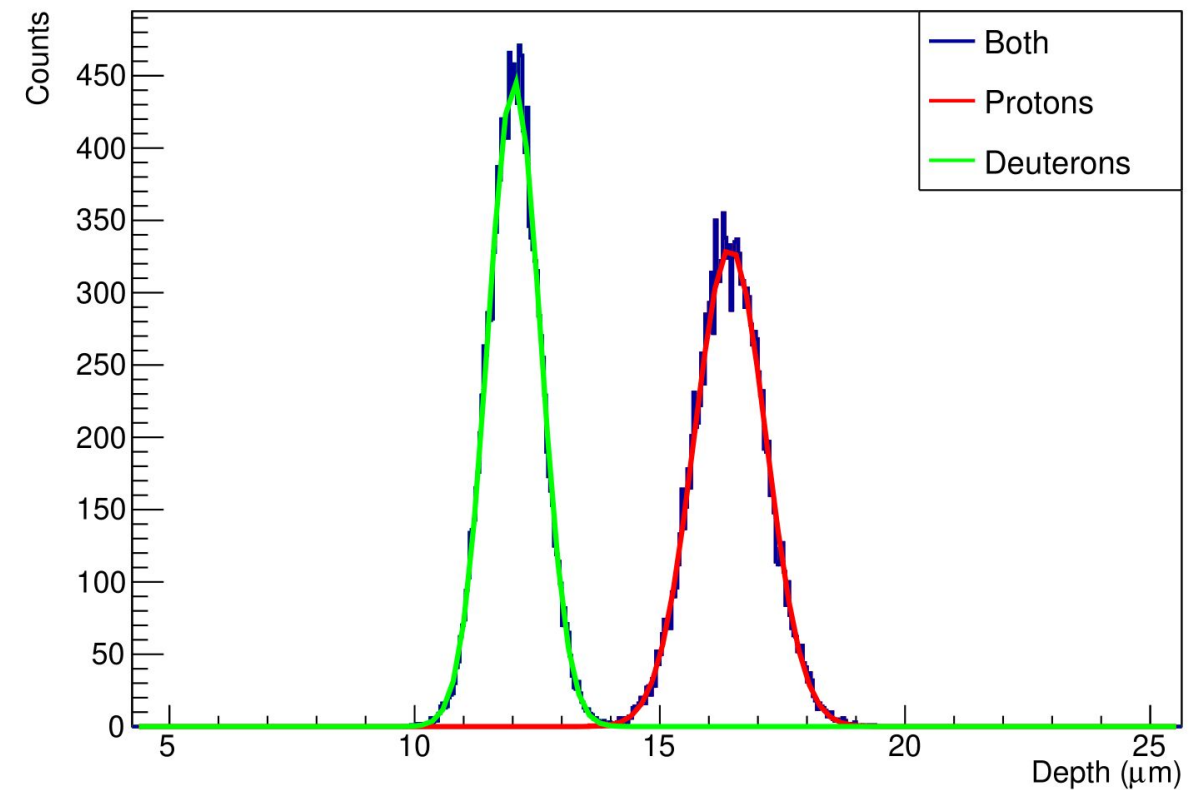


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Ideal Case, All Particles at 90°, 10% Depth Error



1.00 MeV to 1.01 MeV, Ideal Case

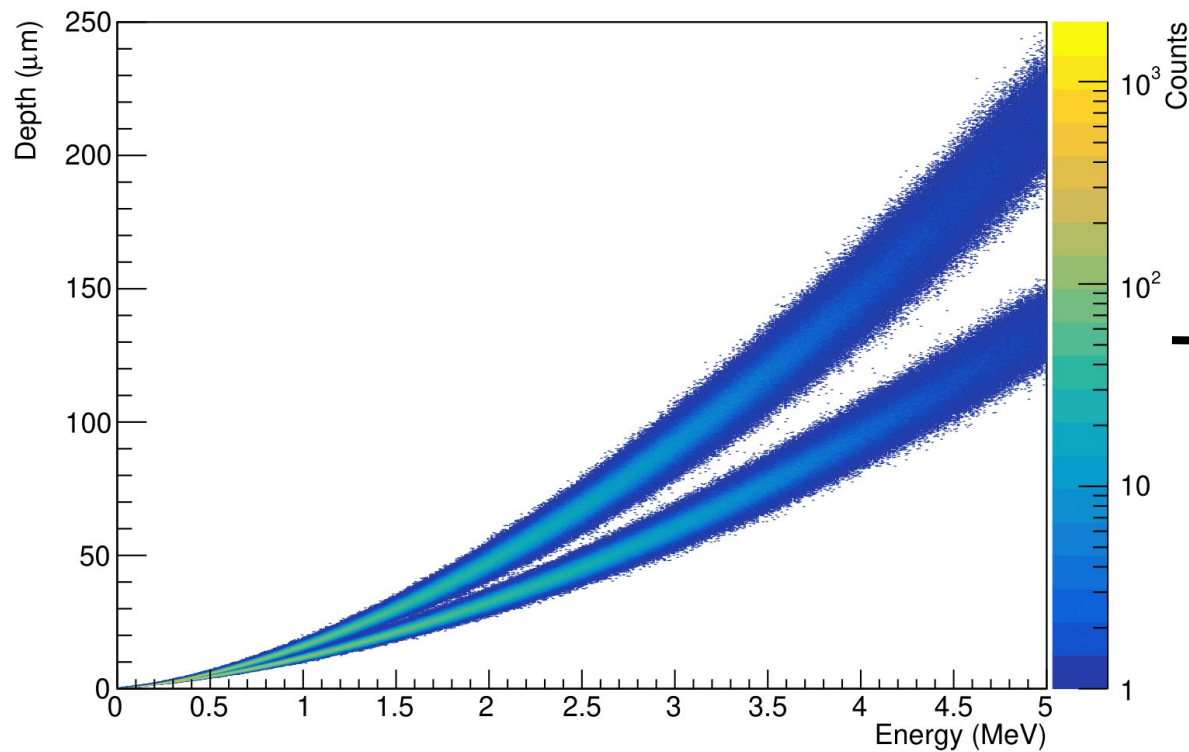


Effect of Target Size

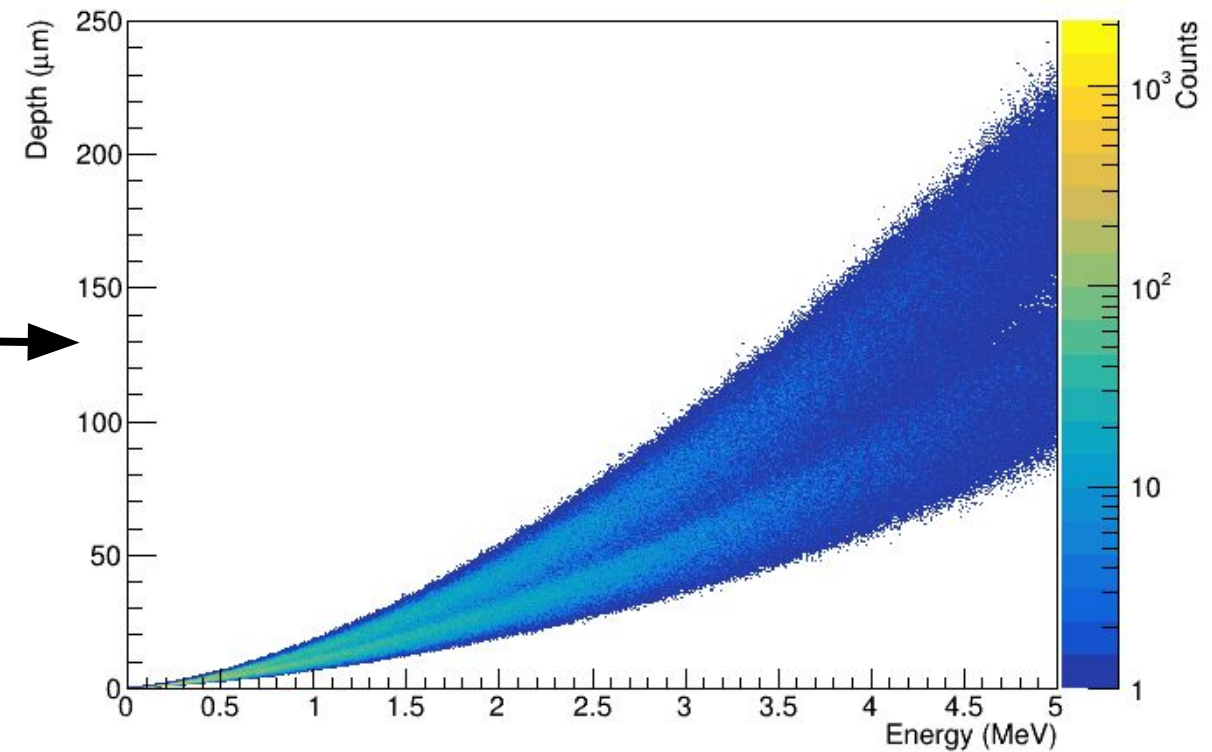


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Ideal Case, All Particles at 90°, 10% Depth Error



1cm by 1cm Square Target, 15mm Separation, 10% Depth Error



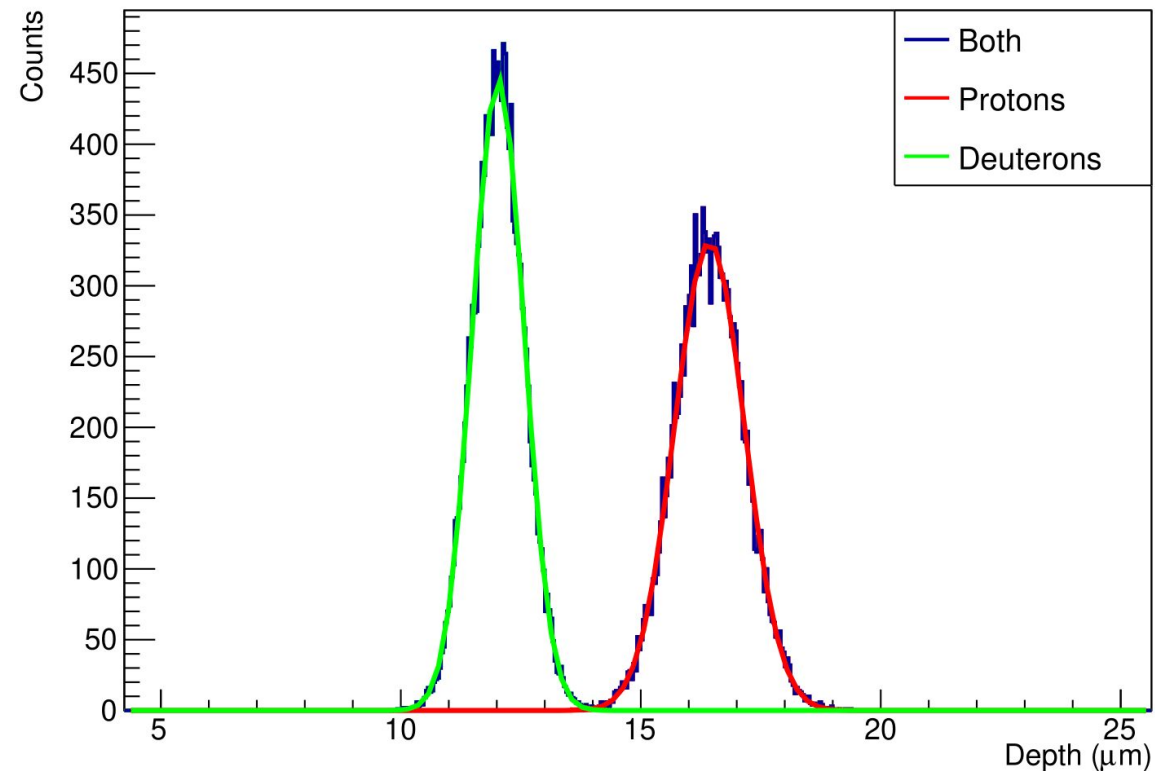
Effect of Target Size



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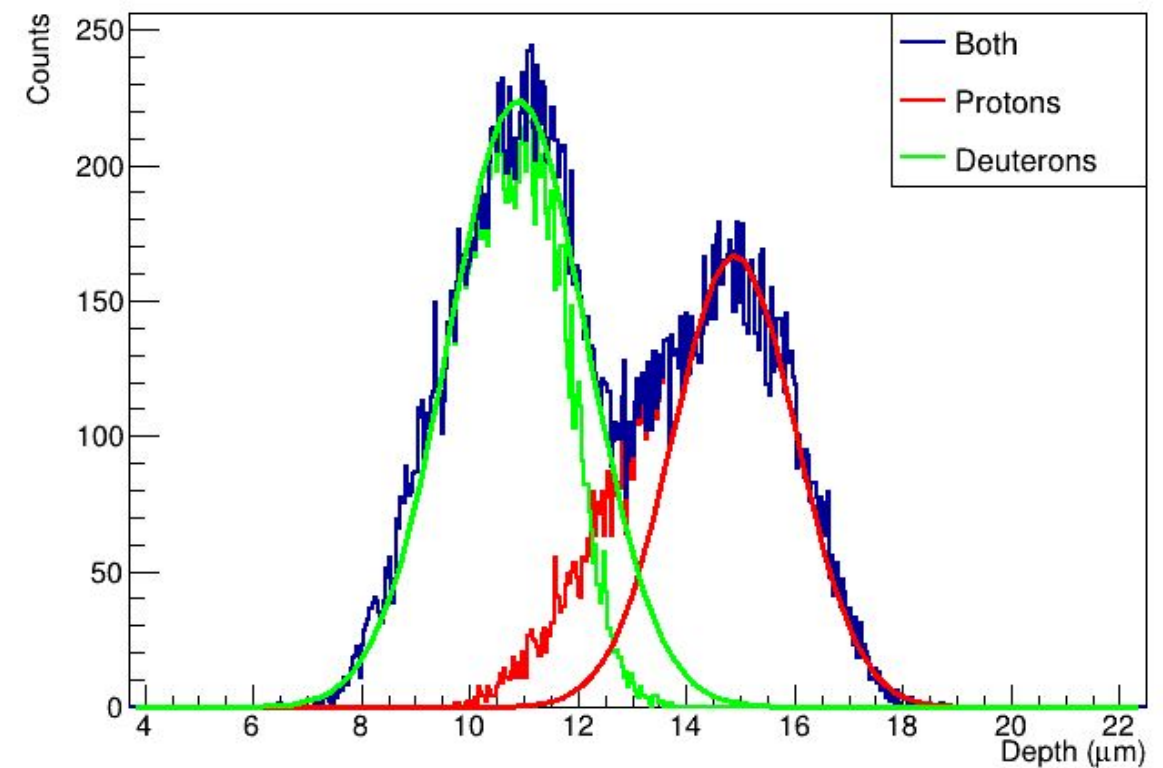
FoM: 1.475

1.00 MeV to 1.01 MeV, Ideal Case



FoM: 0.704

1.00 MeV to 1.01 MeV, Square Detector



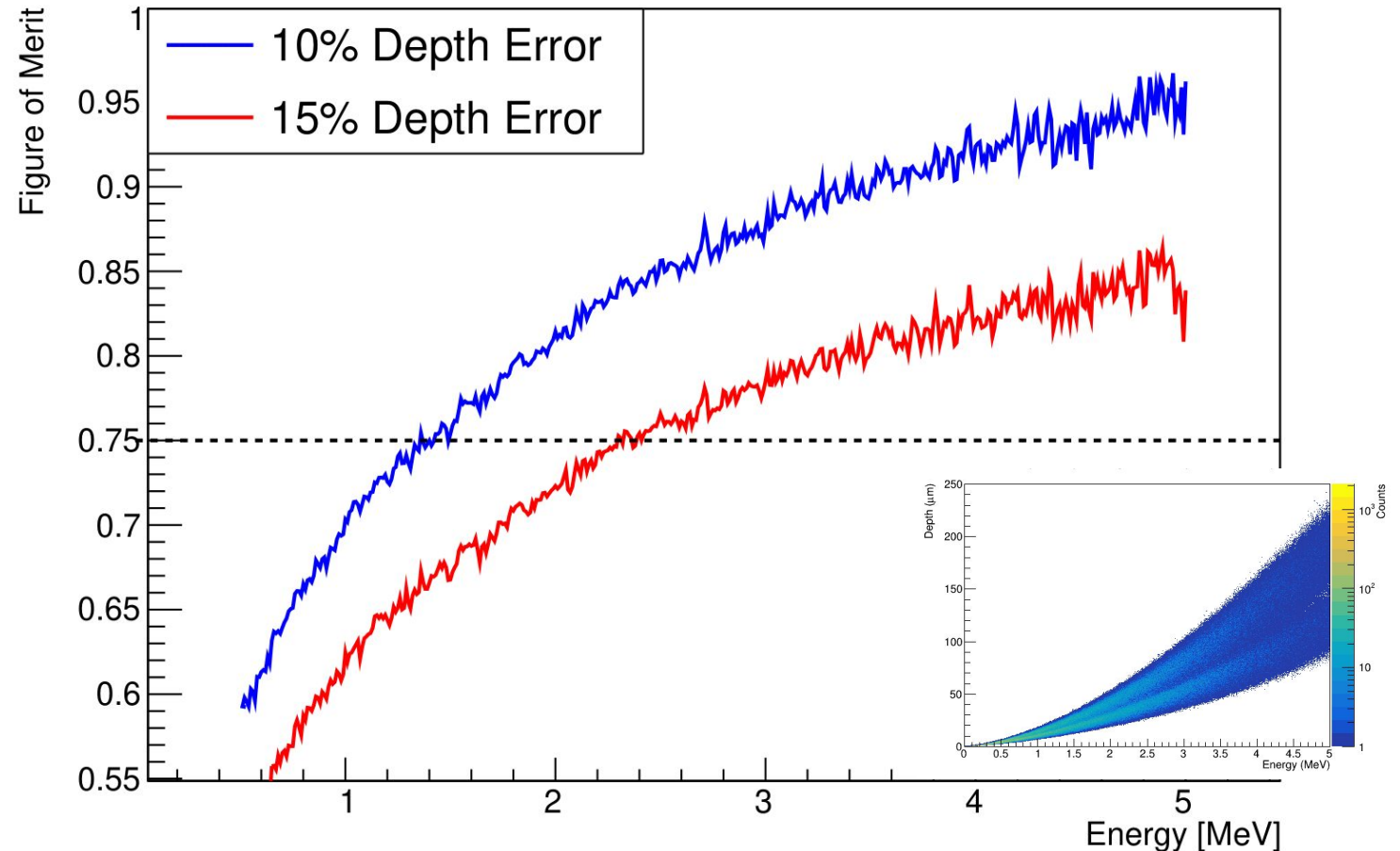
15mm, Different Errors



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Figure of Merit as Energy Bins, 15mm Spacing

- FoM > 0.75 is a good benchmark for discernible peaks
- 10% error -> above 1.4 MeV
- 15% error -> above 2.3 MeV



Different Separations



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- Increasing separation to 20mm vastly improves our ability to discern peaks
- 1.4 MeV to 0.6 MeV
- About 50% loss in counts, likely not worth it

Figure of Merit as Energy Bins, 10% Depth Error

