Track-length determination using OpenCV and Skeletonization

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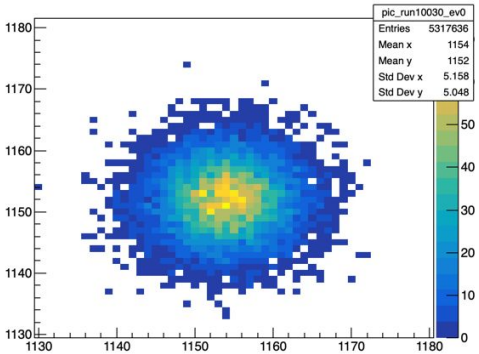
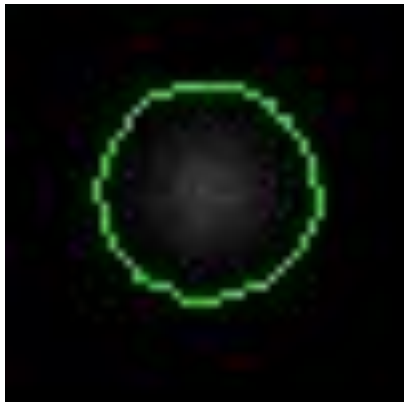
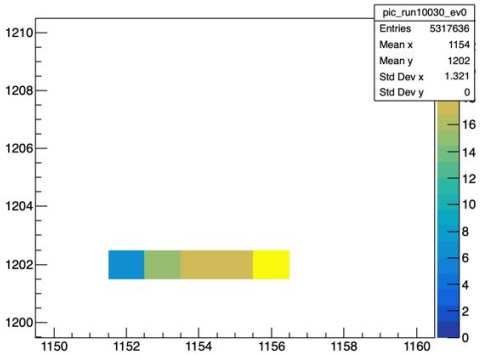
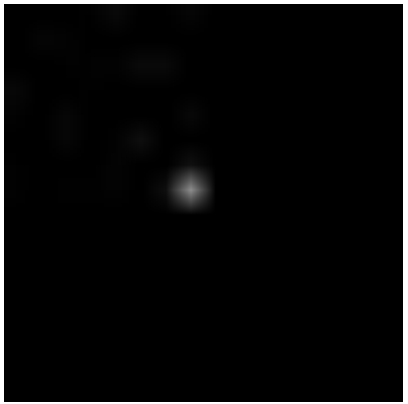
Clusters and Skeleton for 30 keV NR (without noise)

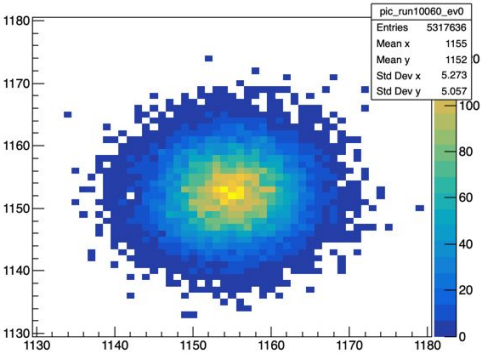


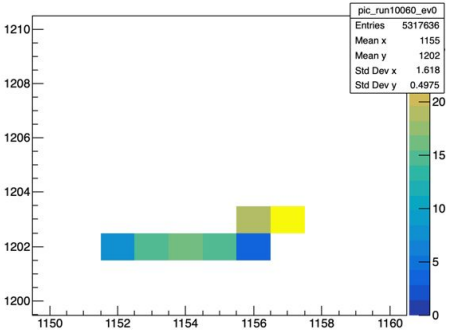


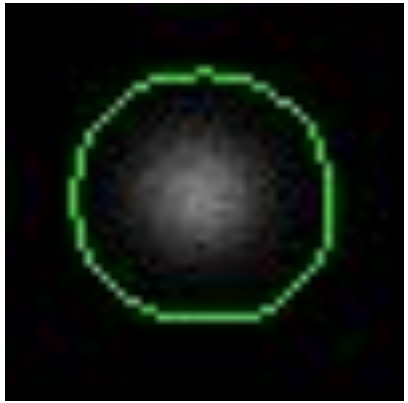




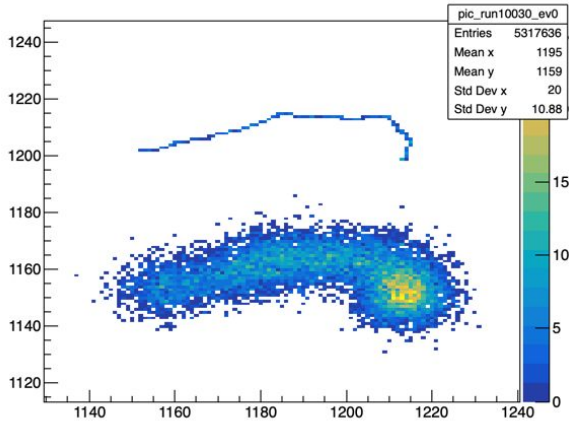
Cluster and Skeleton for 60 keV NR (without noise)

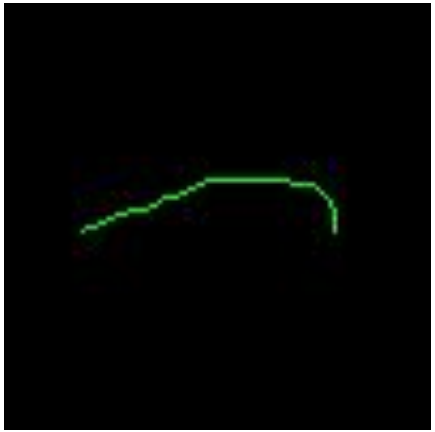




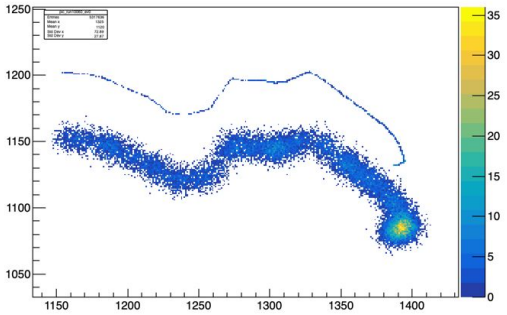


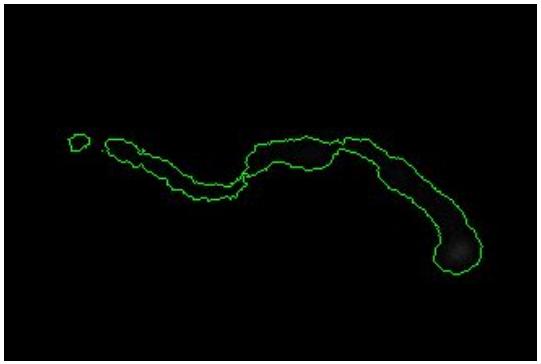
Cluster and Skeleton for 30 keV ER (without noise)

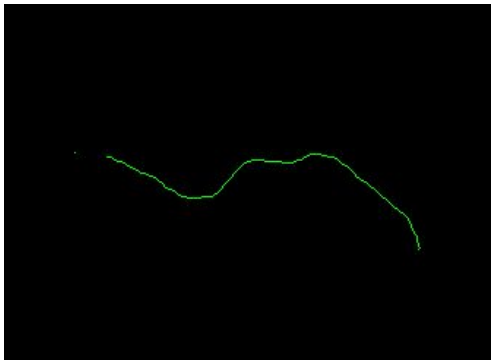


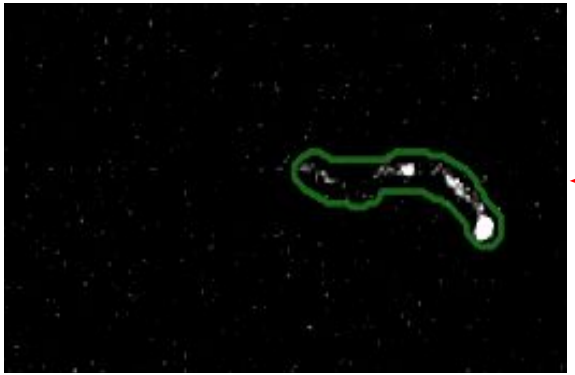


Cluster and Skeleton for 60 keV ER (without noise)









Reconstructed 60 keV ER with GAC algorithm (with noise).

Track-length computed using different methods

	SRIM (He recoil)	*Geant4 (track_len)*	*Projected 2D (using distance formula)*	*Reconstructed sc_pathlength*	*Reconstructed sc_length*	*Reconstructed cl_length*	*Skeleton (w/o noise)*
10 keV NR	0.3	0.30	0.23	4.56	6.38	3.64	
30 keV NR	0.7	0.79	0.69	4.56	6.23	4.71	0.152
60 keV NR	1.1	1.03	0.86	4.56	5.92	4.86	0.456
100 keV NR	1.5	1.51	1.43	4.56	6.23	5.32	0.76
300 keV NR	----	2.82	3.34	4.56	5.92	6.99	1.368
30 keV ER	----	6.22	22	4.56	7.44	7.6	8.81
60 keV ER		25.06	85.13	31.92	37.69	19.76	35.41

To Do:

- Use this method for the tracks with noise
- Passing only the cluster through the skeletonization process
- Improve the method for the split tracks