Mass recon.

- Reaction vertices in output text file are outside of the kinematic range occasionally.
- Bug in either how we generator the events (not likely?) or how we save the events

[94]:

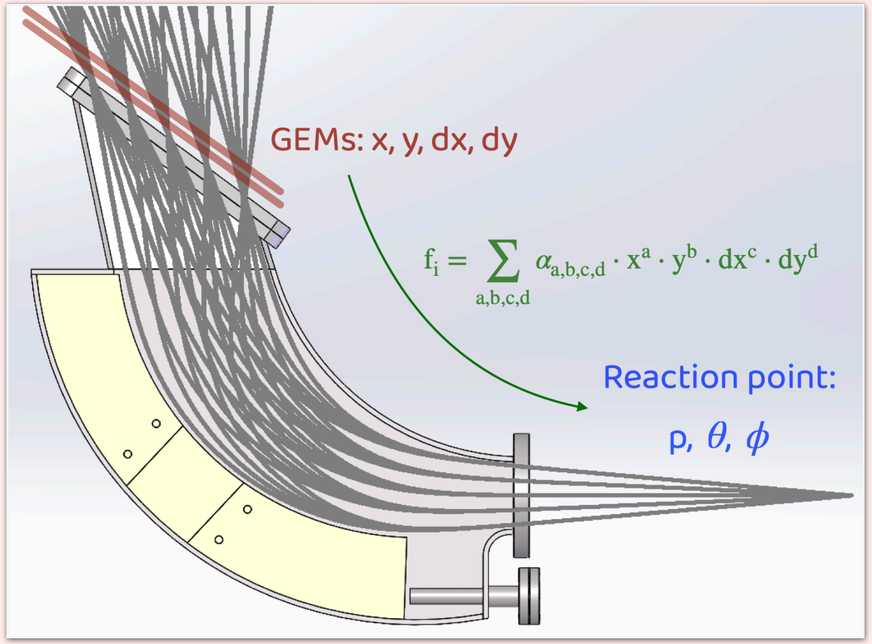
	P	ip	oop	X	Y	dX	dY
119353	14.2444	-56.4185	2.24753	-171.623	42.04260	19.3932	53.6618
312715	17.7906	-57.2259	3.08690	-124.565	-55.34380	16.3041	69.6562
946143	14.0842	-55.1168	-6.88548	166.354	9.63717	29.1896	30.4245

3 out of range in 1M events

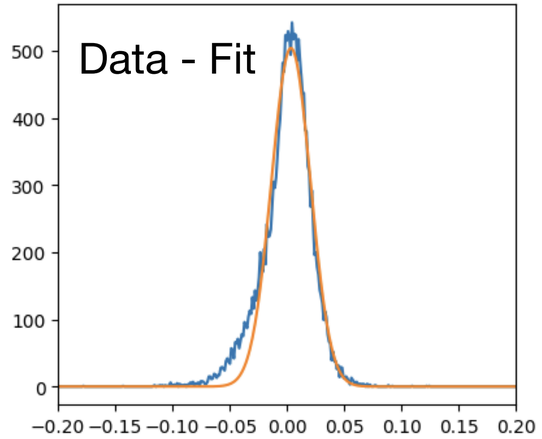
Randomly generate p, ip, oop within acceptance → PrimaryGeneratorAction generate Primary Vertex → SenDet ask step for vertex momentum → EventAction ask SenDet for vertex momentum then calculation p, ip, oop then save to txt

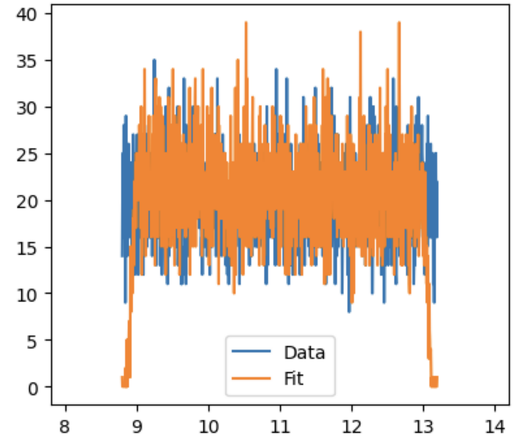
Mass recon.

- Current fits have some bias in angles

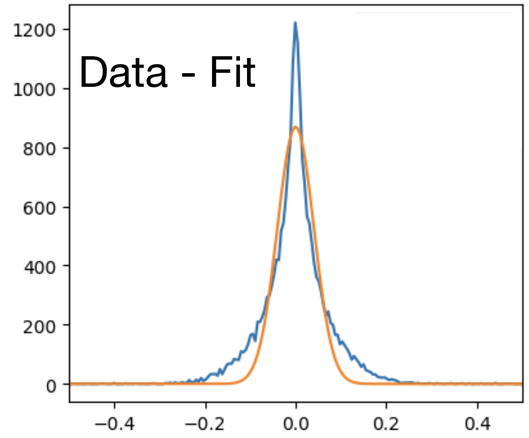


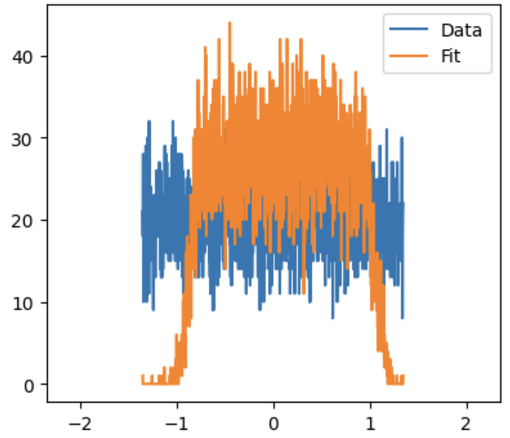
Momentum



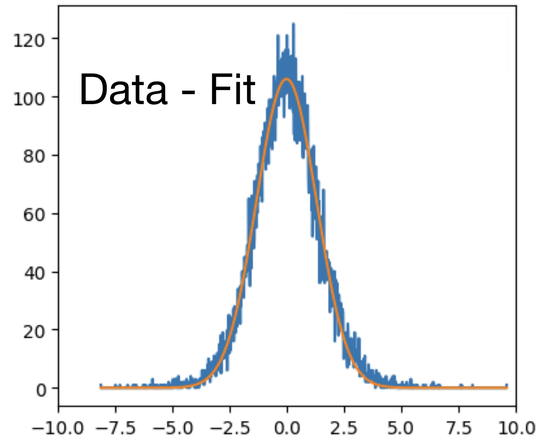


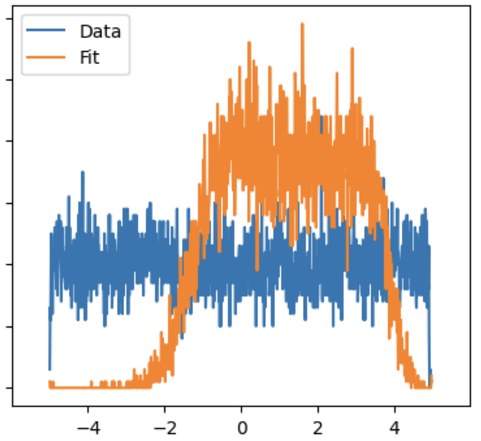
in-plane





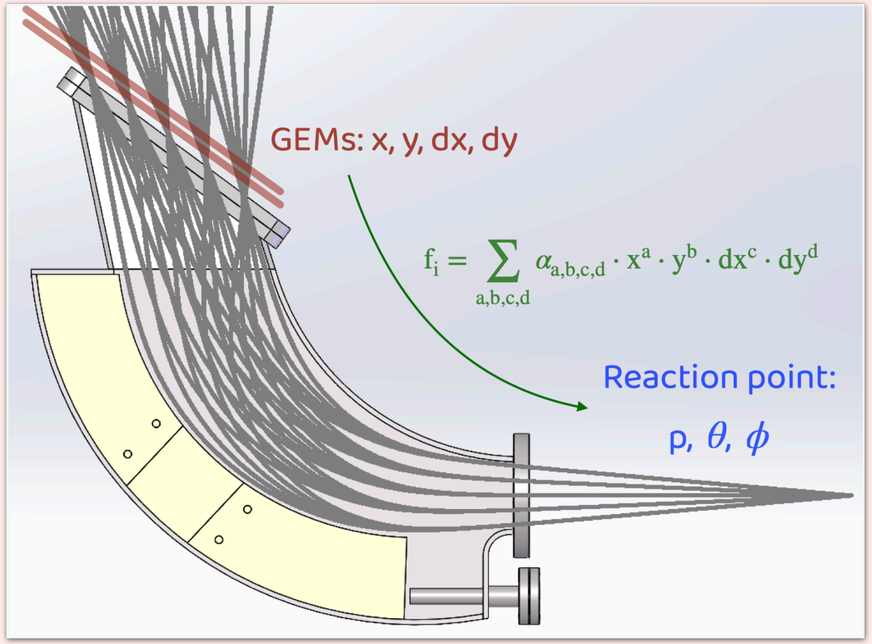
Out-of-plane



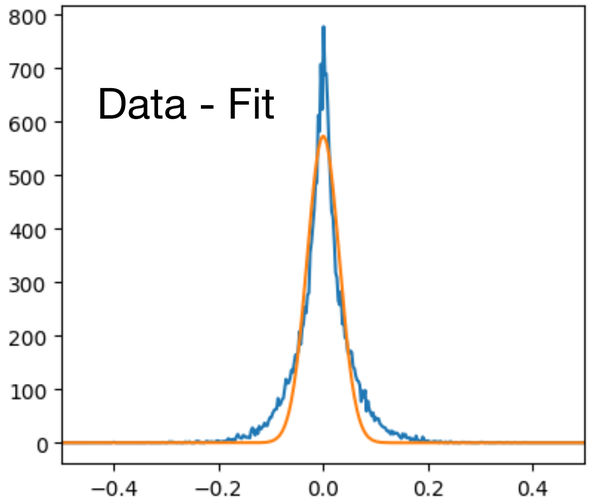


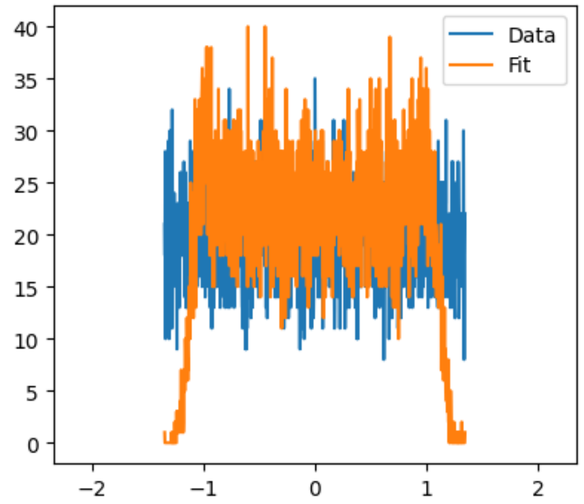
Mass recon.

- Current fits have some bias in angles
- Increase number of parameters in fit function reduces bias

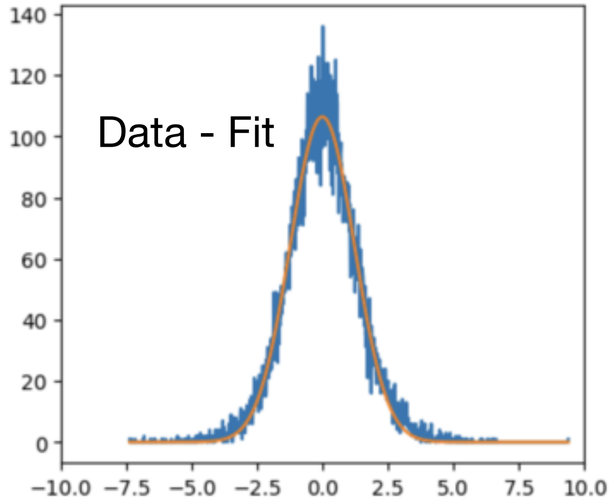


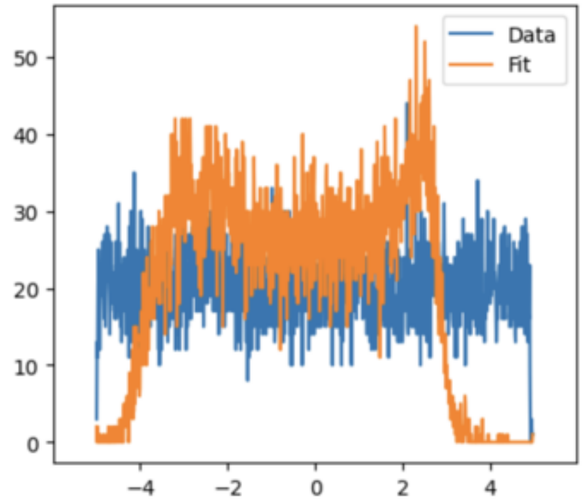
in-plane





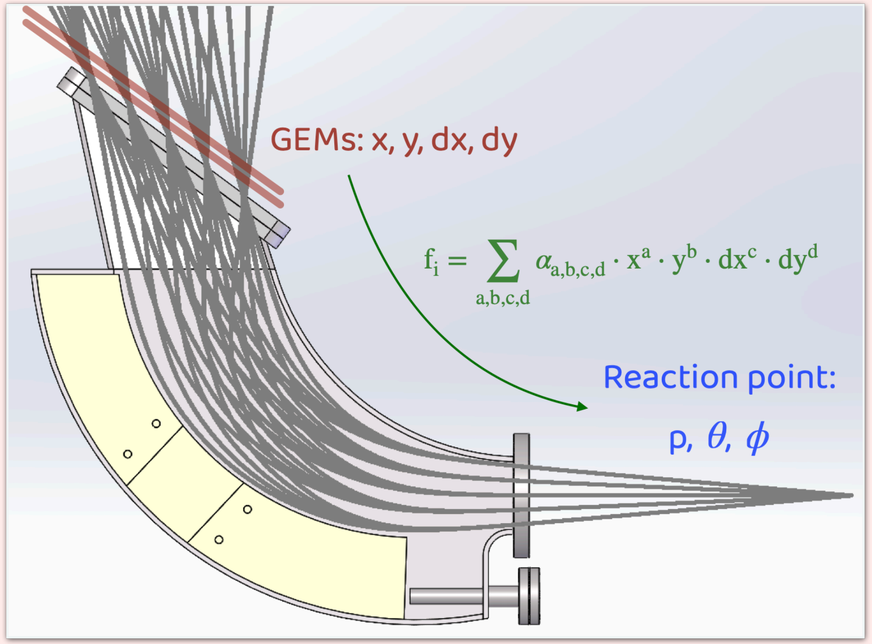
Out-of-plane



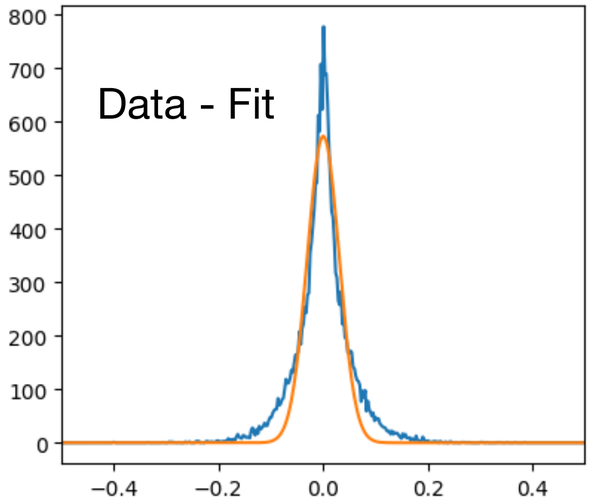


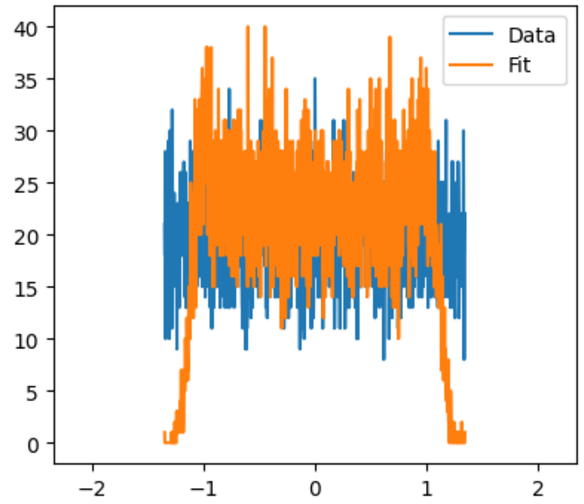
Mass recon.

- Current fits have some bias in angles
- Increase number of parameters in fit function reduces bias
- But now it is taking a long time to fit ..

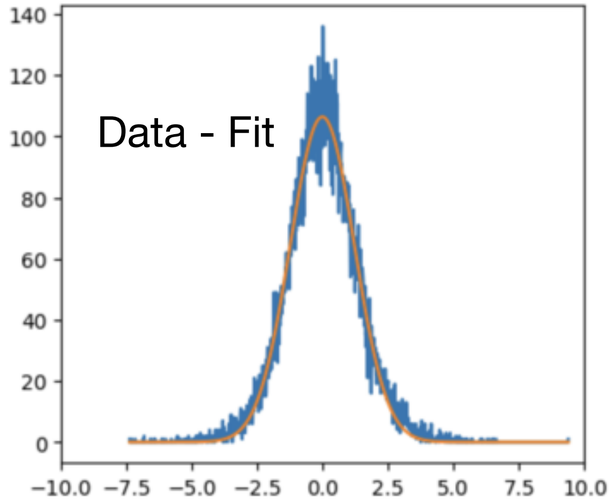


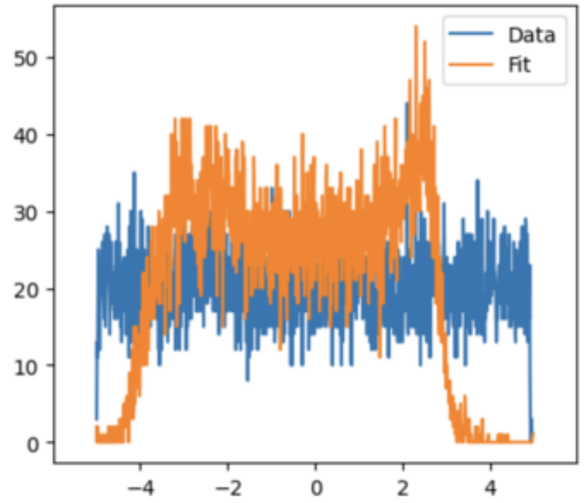
in-plane





Out-of-plane





ML model

- Sid is trying using ML for the mapping.

8 layer NN with ReLU activation