

Joint Institute for Nuclear Research (Dubna)

Charge from straw tubes

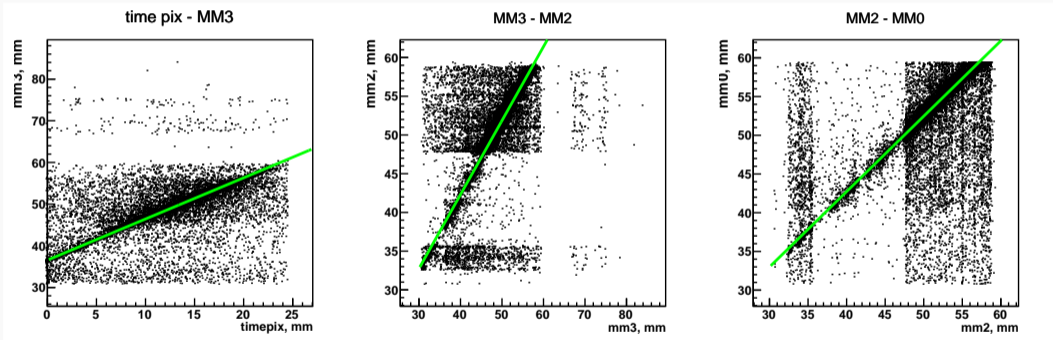
Artem Chukanov

29th of September, 2023

Preliminary alignment



1



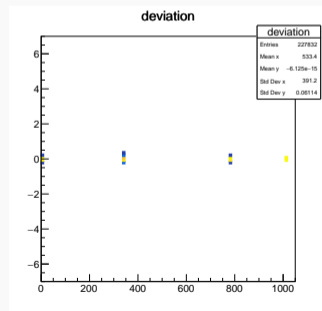
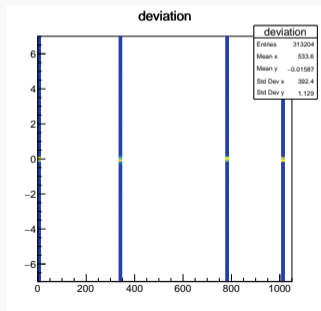
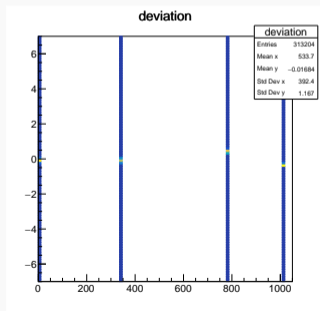


Hits deviation from track (mm)

Preliminary track fit

intermediate alignment

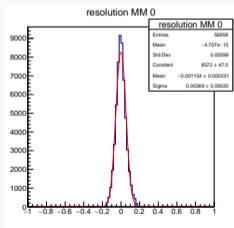
$\chi^2 > 5$ and final alignment



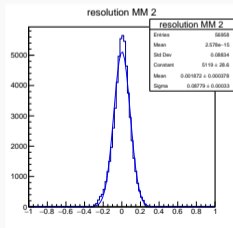


$$\chi^2 = \sum_{i=0}^4 \frac{(\text{distance to track})^2}{\sigma^2}$$

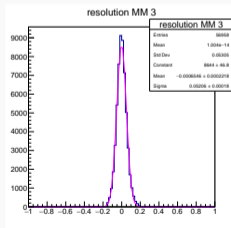
$\sigma = 0.056 \text{ mm}$



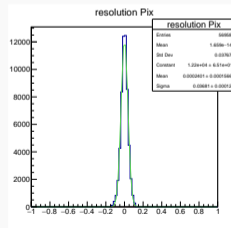
$\sigma = 0.095 \text{ mm}$



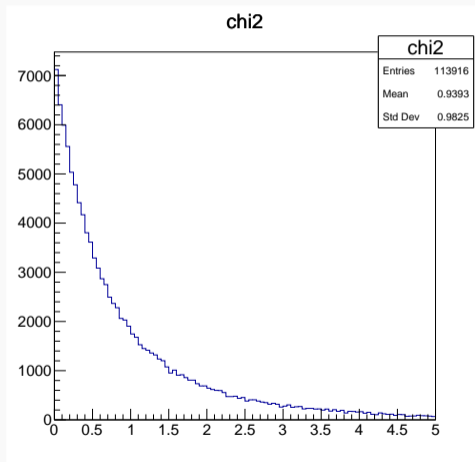
$\sigma = 0.054 \text{ mm}$

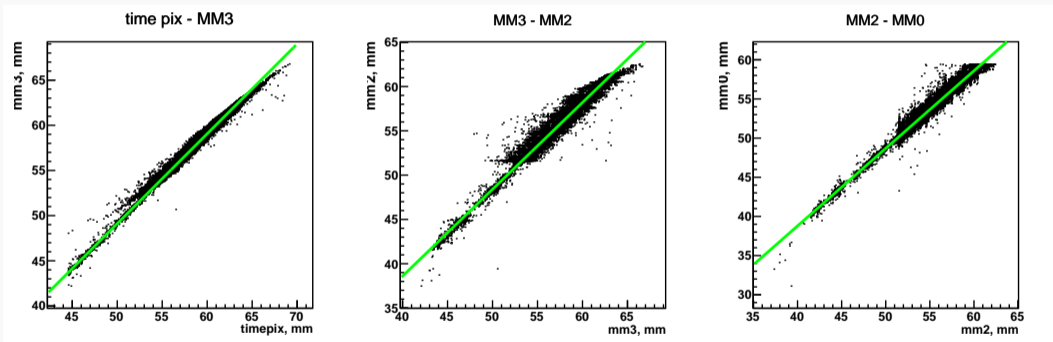


$\sigma = 0.039 \text{ mm}$

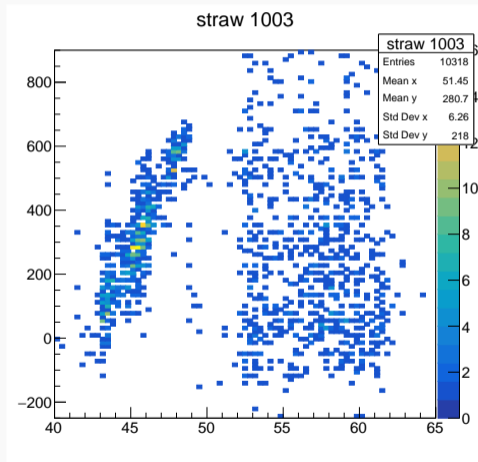
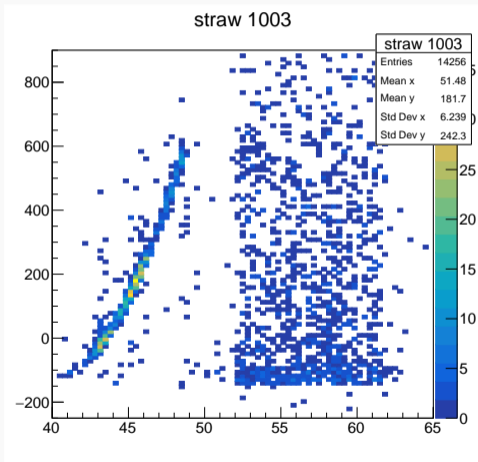


χ^2 distribution

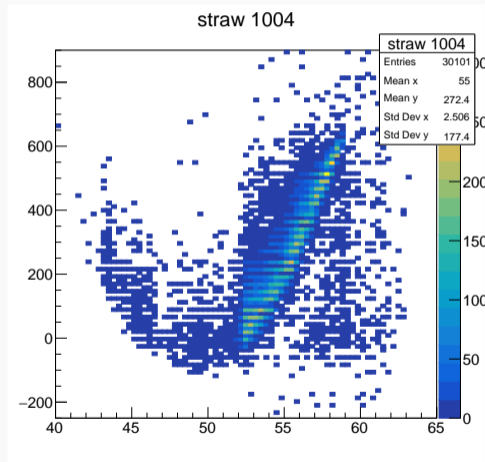
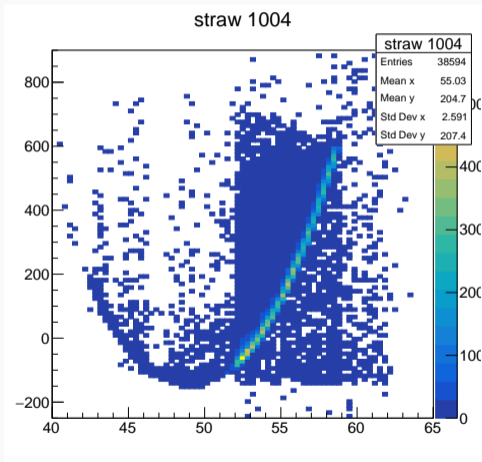




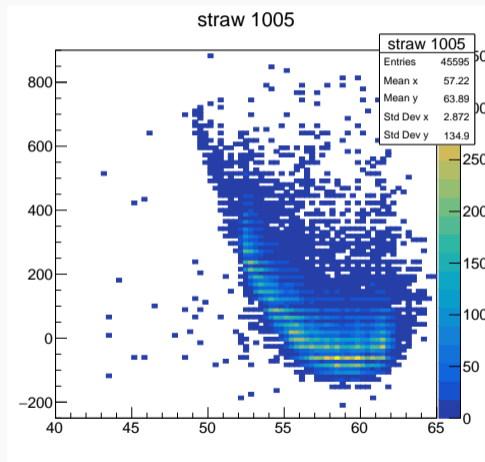
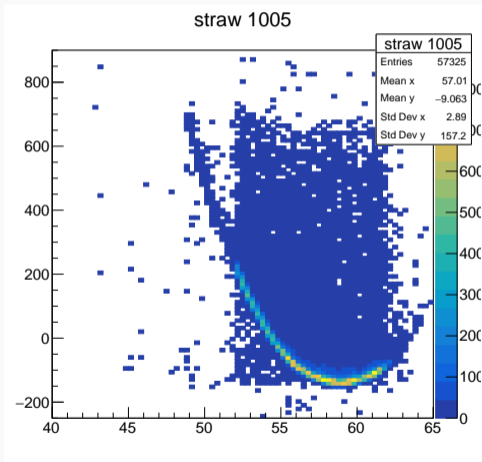
RT distributions for 25 ns and 200 ns charge collection time



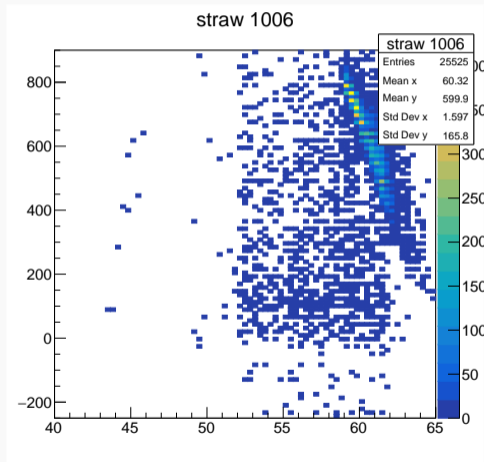
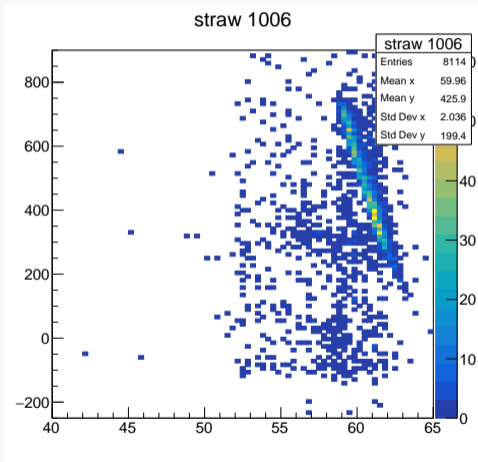
RT distributions for 25 ns and 200 ns charge collection time



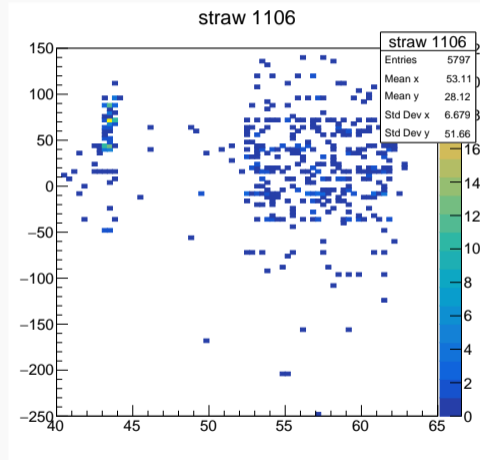
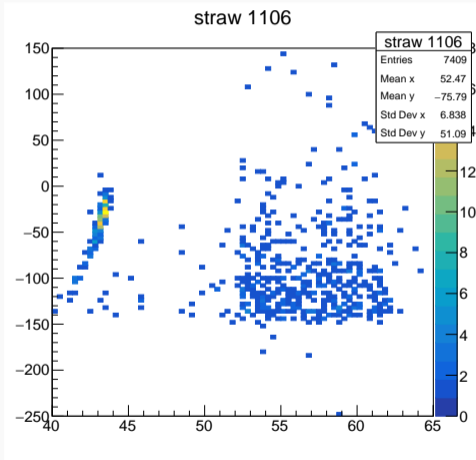
RT distributions for 25 ns and 200 ns charge collection time



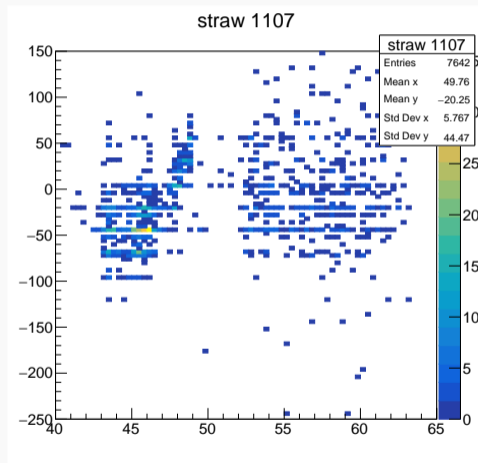
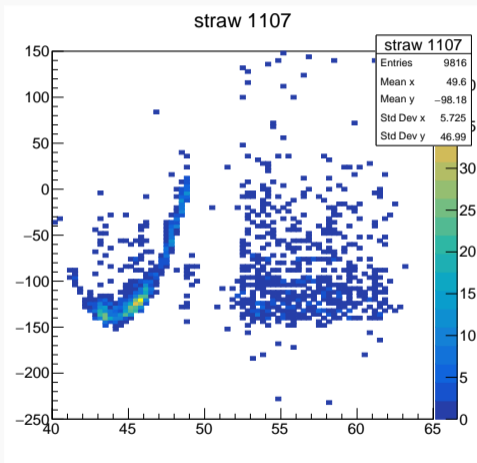
RT distributions for 25 ns and 200 ns charge collection time



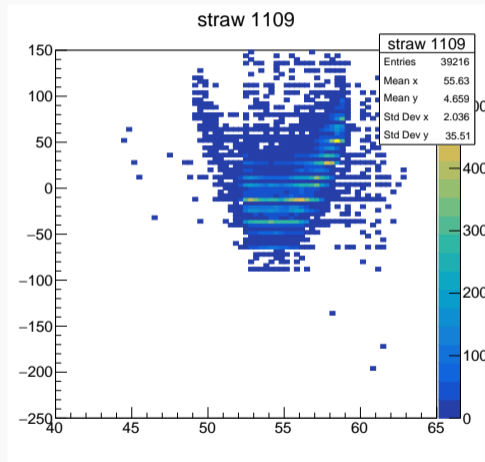
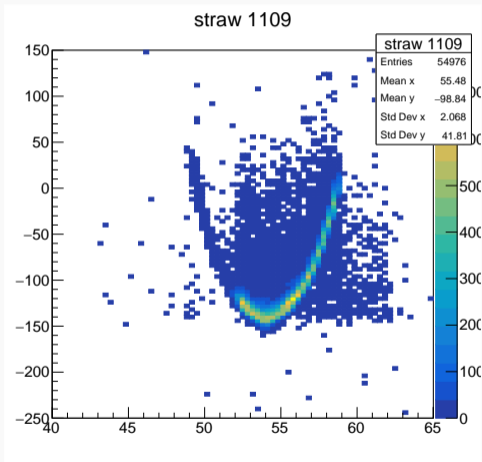
RT distributions for 25 ns and 200 ns charge collection time



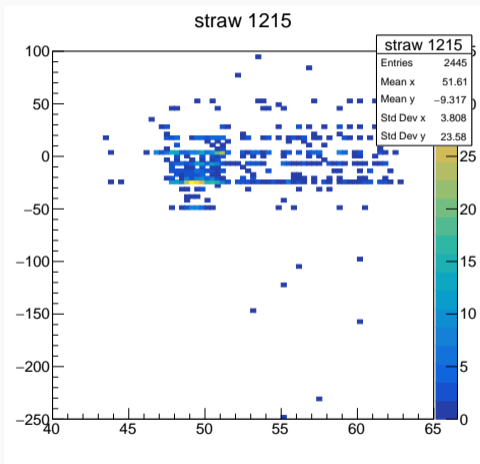
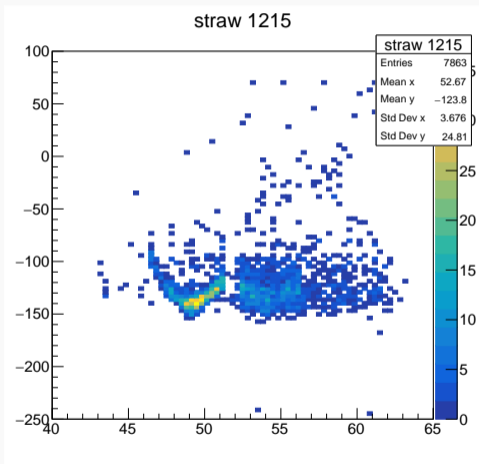
RT distributions for 25 ns and 200 ns charge collection time



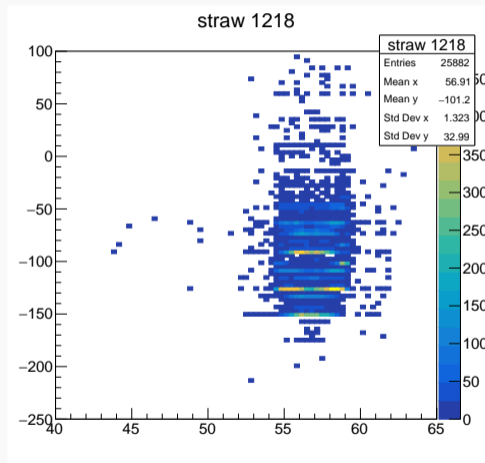
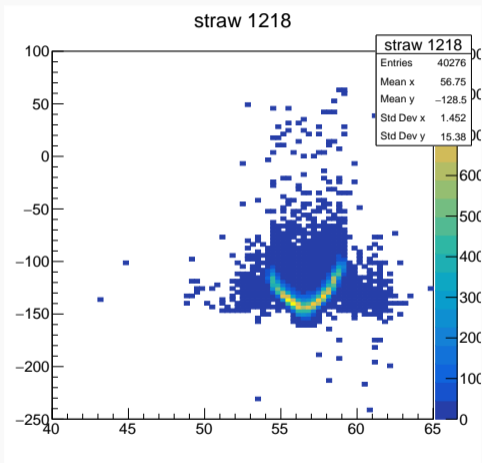
RT distributions for 25 ns and 200 ns charge collection time



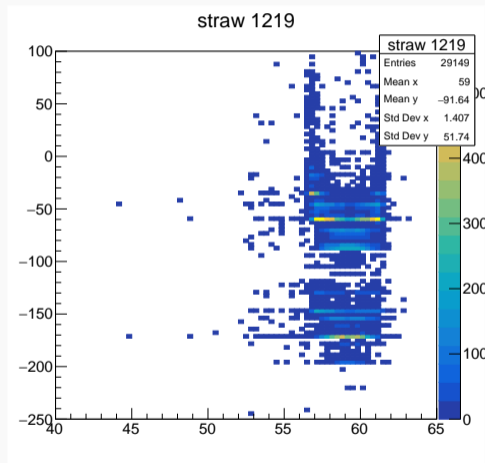
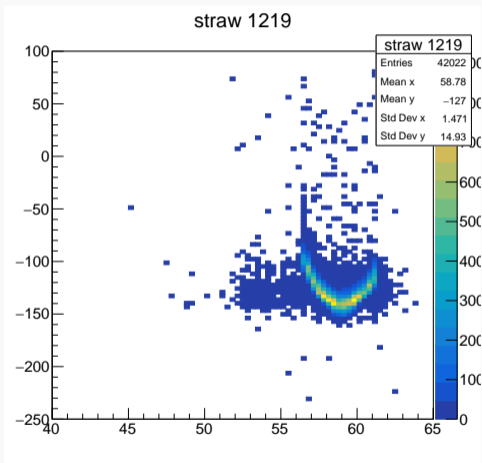
RT distributions for 25 ns and 200 ns charge collection time



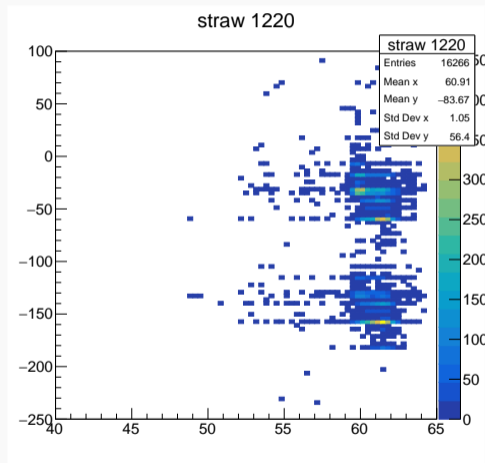
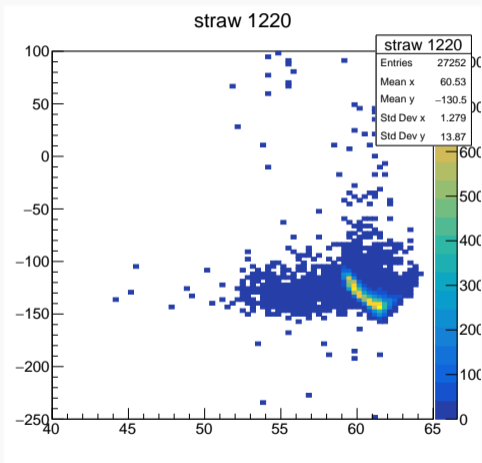
RT distributions for 25 ns and 200 ns charge collection time



RT distributions for 25 ns and 200 ns charge collection time



RT distributions for 25 ns and 200 ns charge collection time

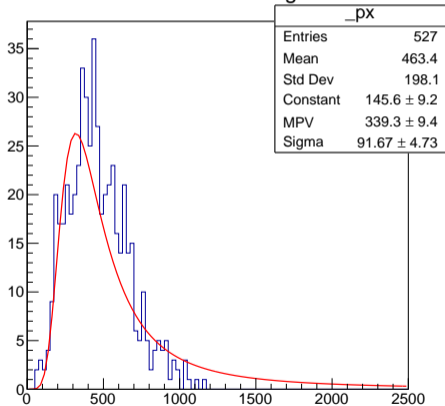


Signal fitting for 25 ns and 200 ns charge collection time

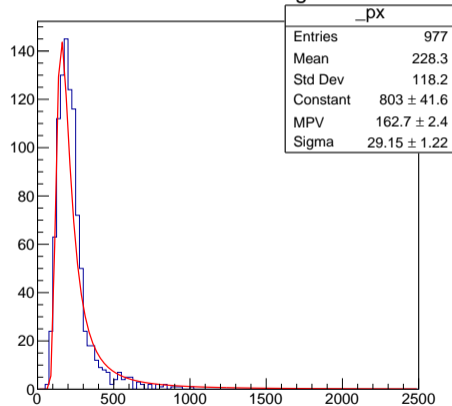


Charge for 1 mm

straw 1109 charge



straw 1109 charge

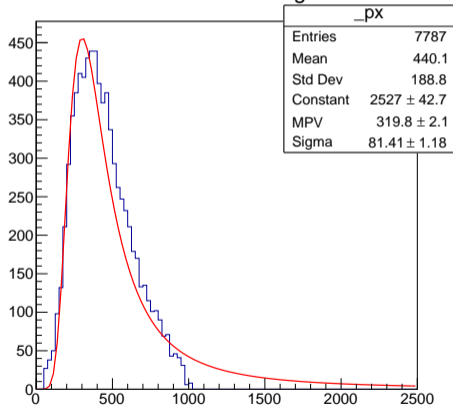


Signal fitting for 25 ns and 200 ns charge collection time

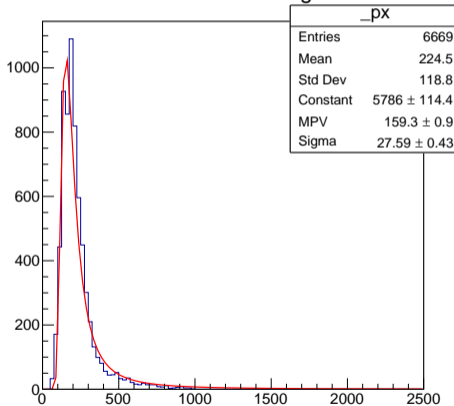


Charge for 1 mm

straw 1109 charge



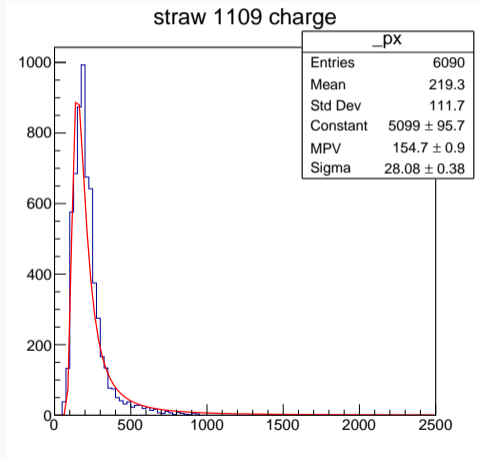
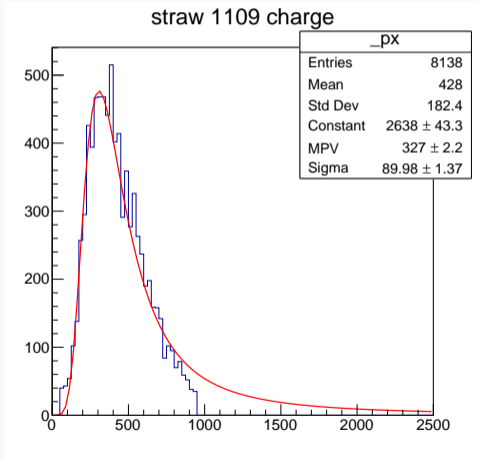
straw 1109 charge



Signal fitting for 25 ns and 200 ns charge collection time



Charge for 1 mm

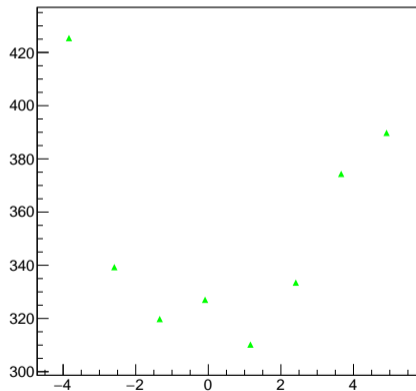


Signal maximum for 25 ns and 200 ns charge collection time

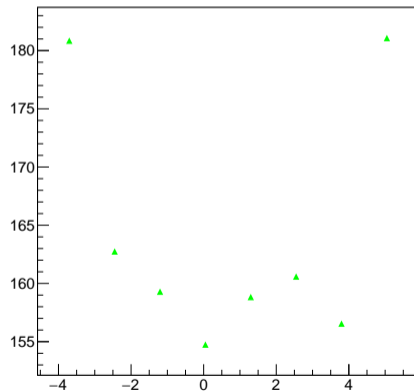


Charge for 1 mm

straw 1109 charge



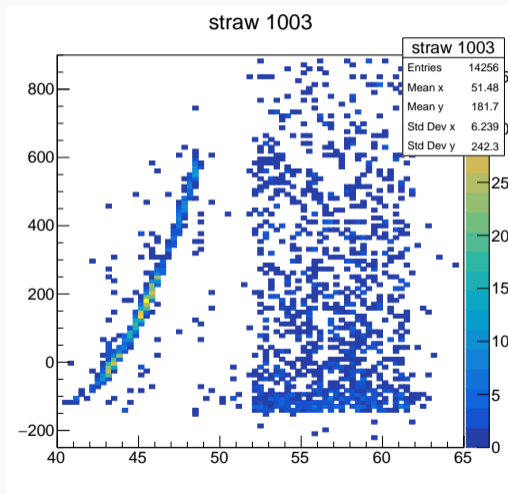
straw 1109 charge



ST signal for one event



tube Id	time	signal
1001	245	544
1002	545	1374
1005	137	572
1006	89	227
1101	20	740
1103	37	581
1104	19	204
1111	-79	226
1112	63	780
1113	70	176
1114	17	343
1115	9	866
1205	-70	399
1206	-62	209
1209	303	1023
1218	-65	141
1219	-16	100





1. Как вычисляется время прихода сигнала на трубки при времени сбора данных в 200 нс?
2. Записать абсолютное время прихода сигнала на трубки, чтобы высчитывает его относительно timerix.
3. Разобраться с множественностью сигналов в трубках в одном событии.