ToT-charge calibration

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Lepcol meeting

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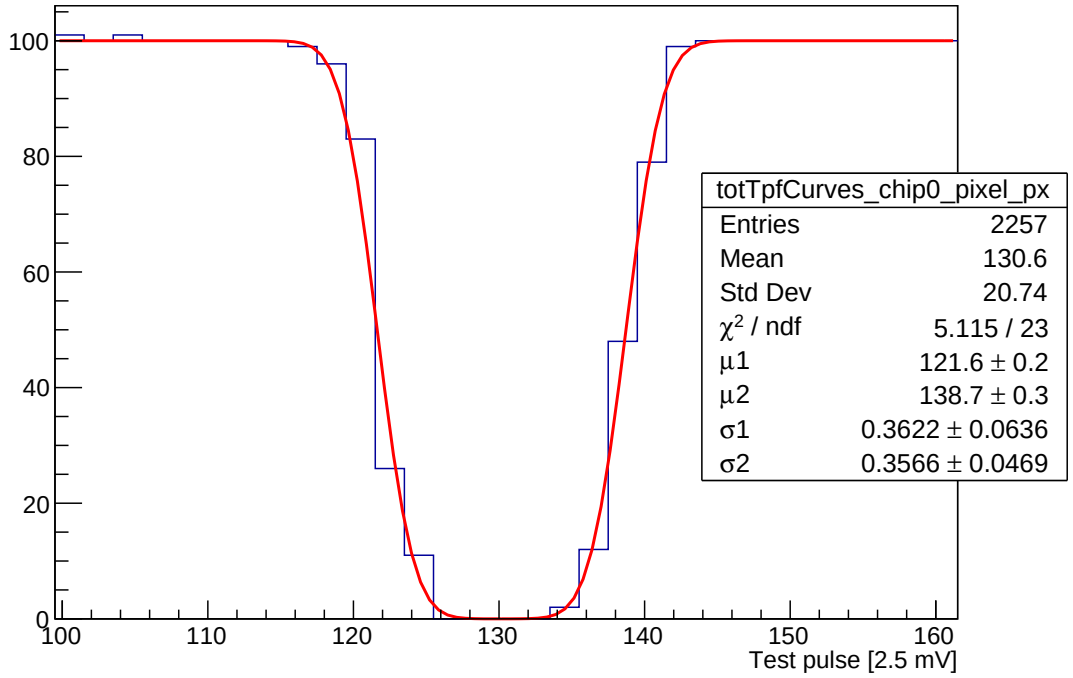
Test pulses

Test pulses are injected on the input pad by switching the connected capacitor between two voltages: VTP_fine and VTP_course
The capacitor has a design strength 3 fF, so each 1 mV is 18.7 e^-
The VTP course is kept fixed, and the VTP_fine can be adjusted in steps of 2.5 mV
Measurements for one pixel in the center (128,128) of one chip

For all values the design specification is used, but the actual values can deviate by more than 10%

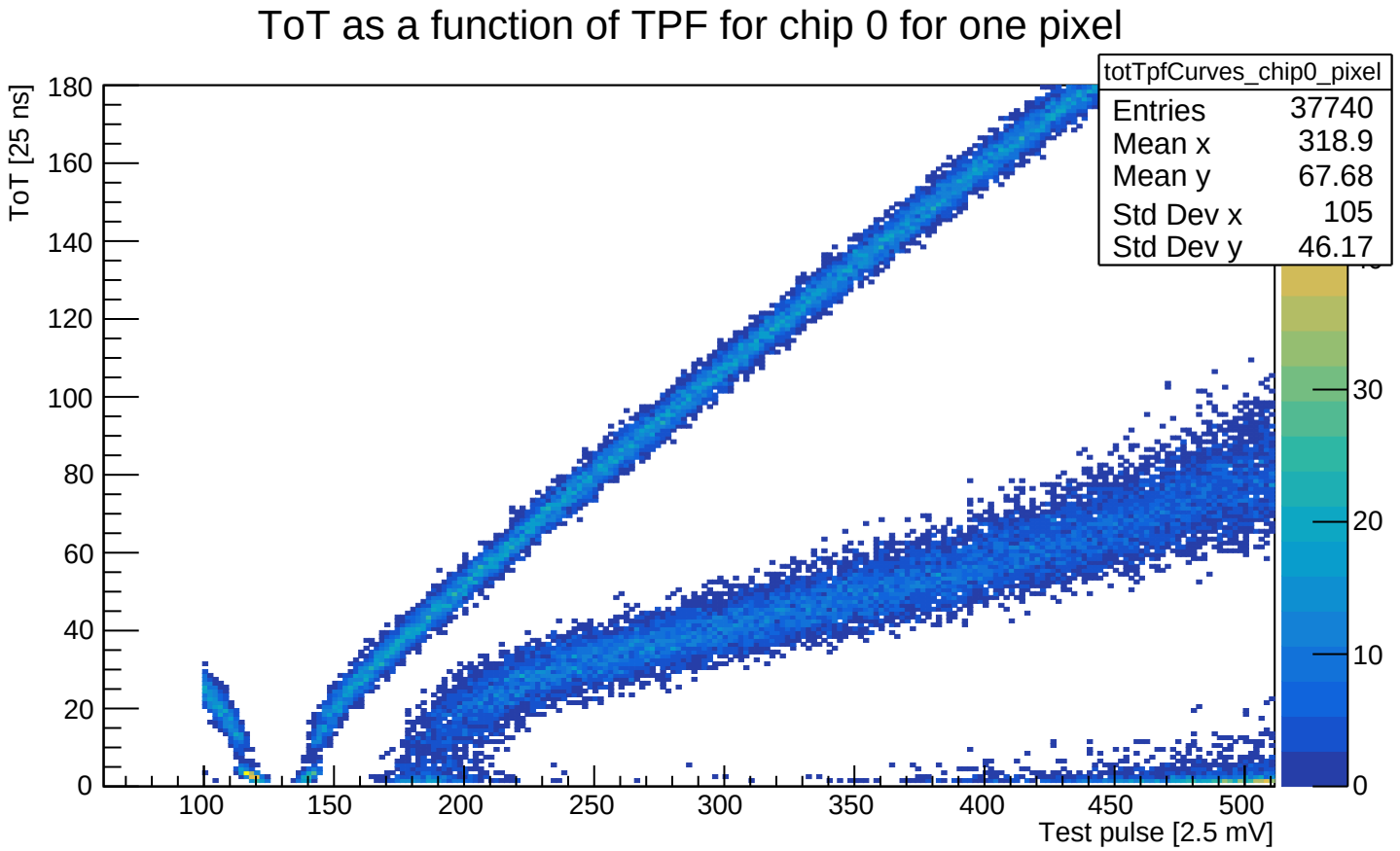
Threshold

100 test pulses are injected, and fitted with two erf

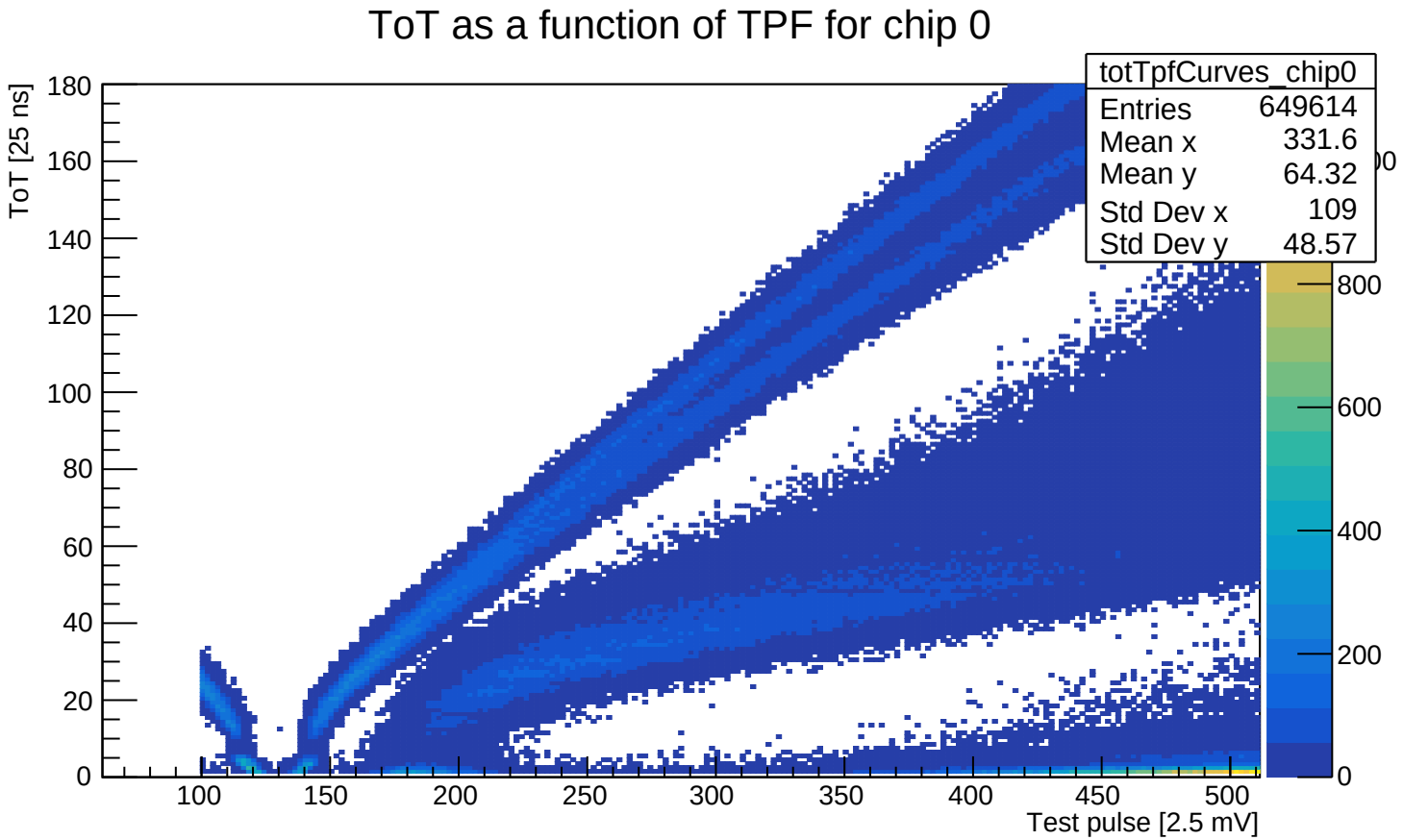


Difference is 17.1 steps = 42.8 mV = 799 e^-, so threshold is about 400 e^-
Threshold was set at 55 DAC steps of 0.5 mV, or 515 e^-

Test pulse measurement of one pixel (128,128)

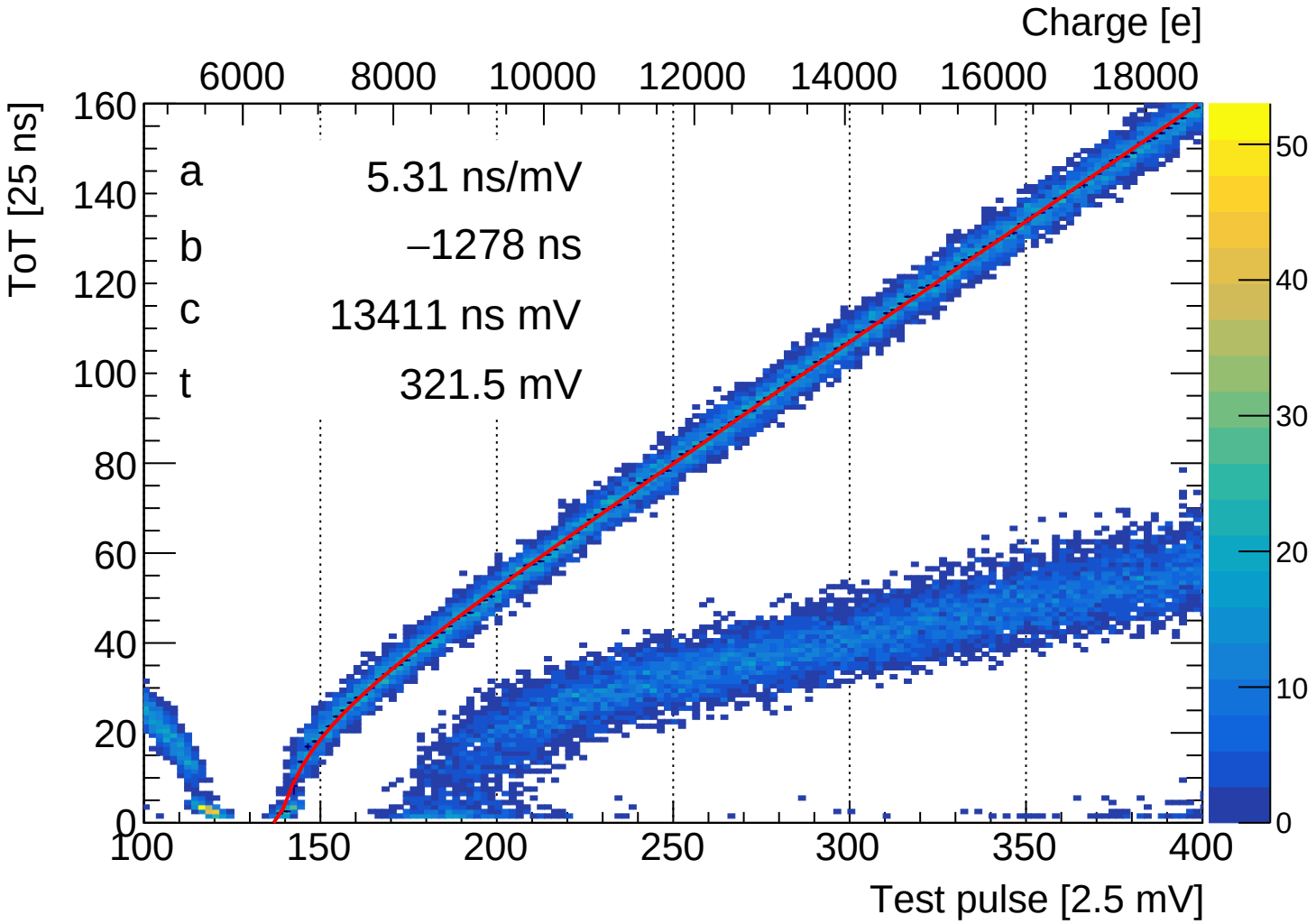


Test pulse measurements of a few pixels



Test pulse can be described by surrogate function

function: $ax + b + c/(x - t)$



Charge - ToT curve