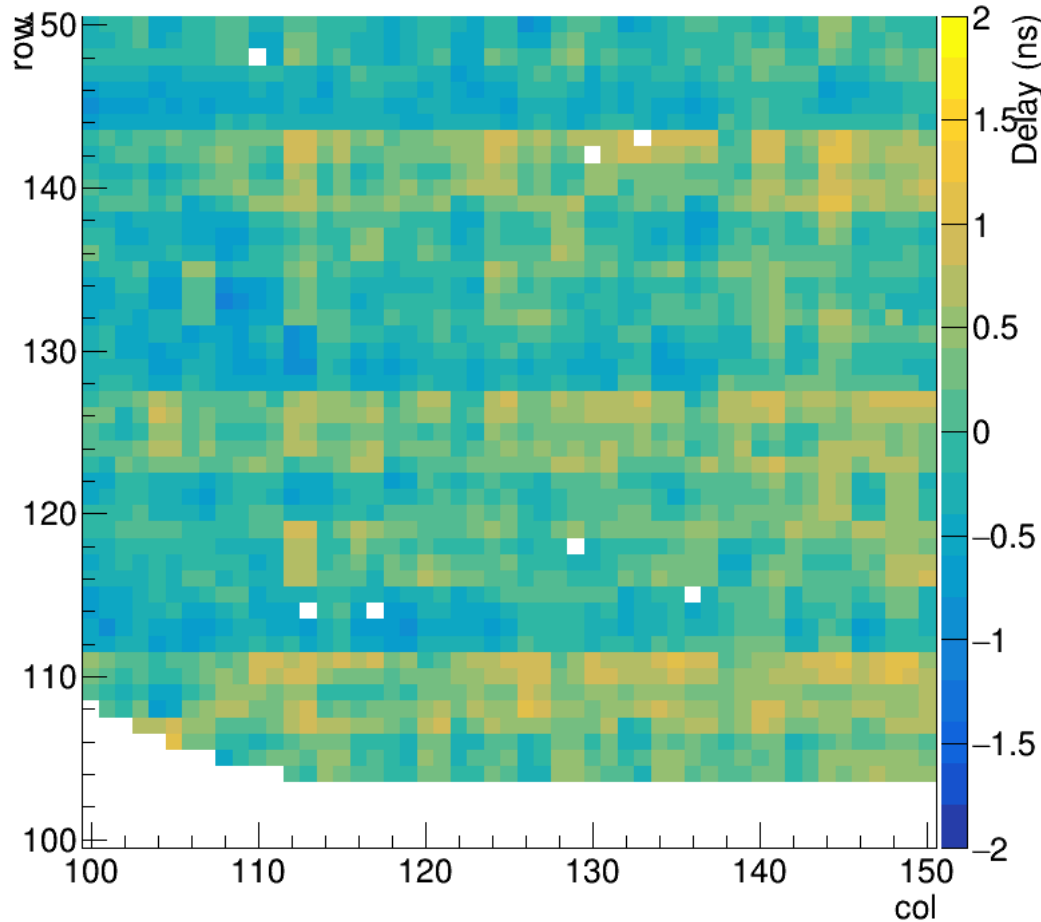


Superpixels

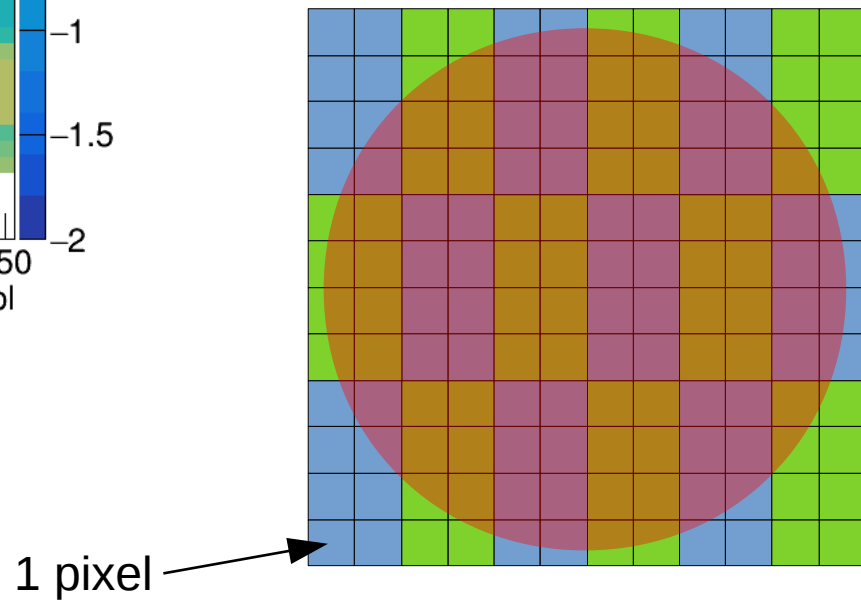
Measured with laser



For a single laser pulse, almost always a complete superpixel is hit

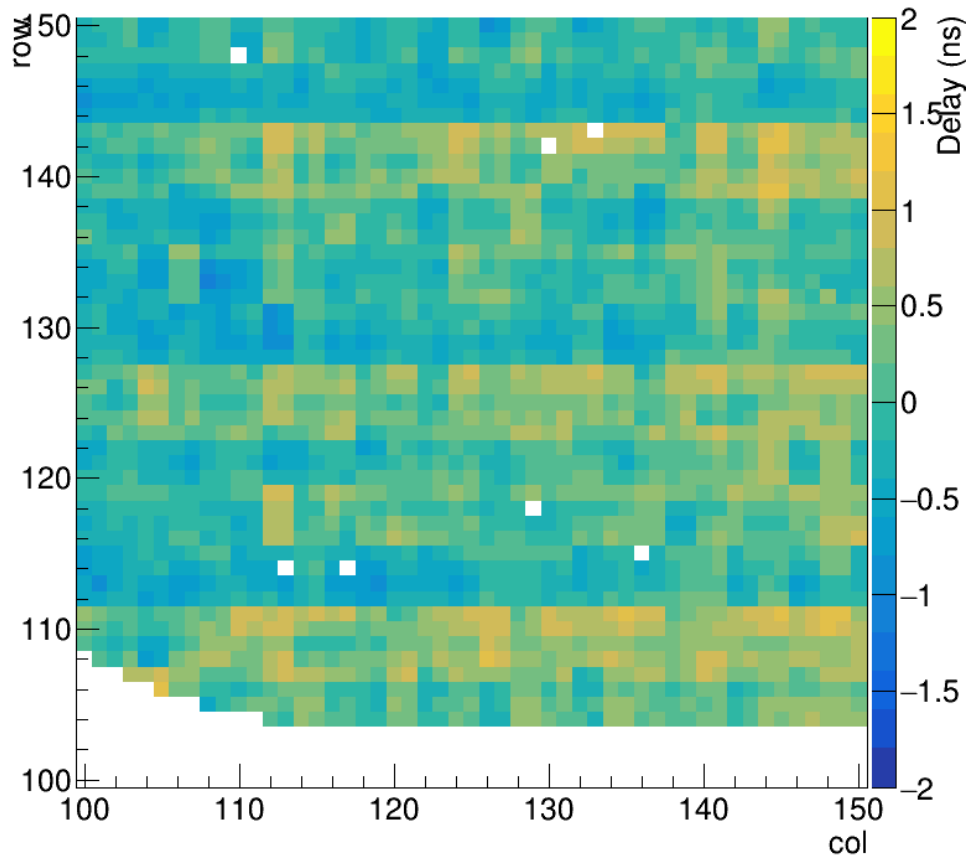
Laser spot has diameter of ~ 10 pixels

Timing is influenced due to hitting the complete superpixel

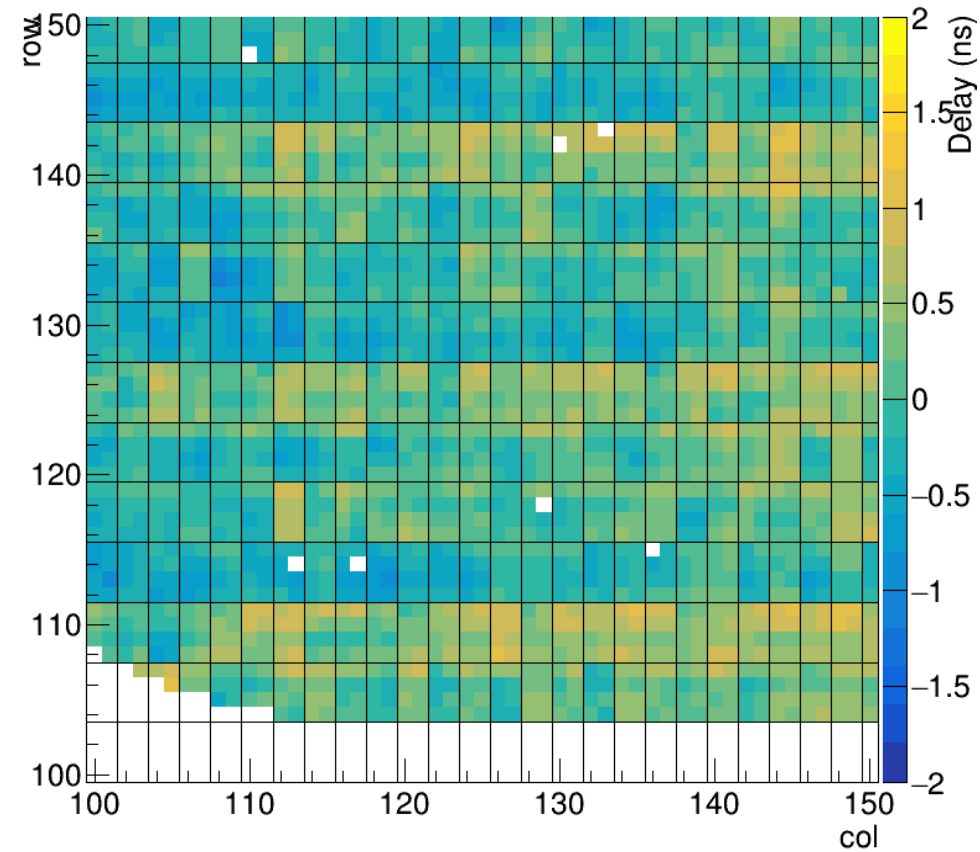


Superpixel

DUT - Trigger (ns)



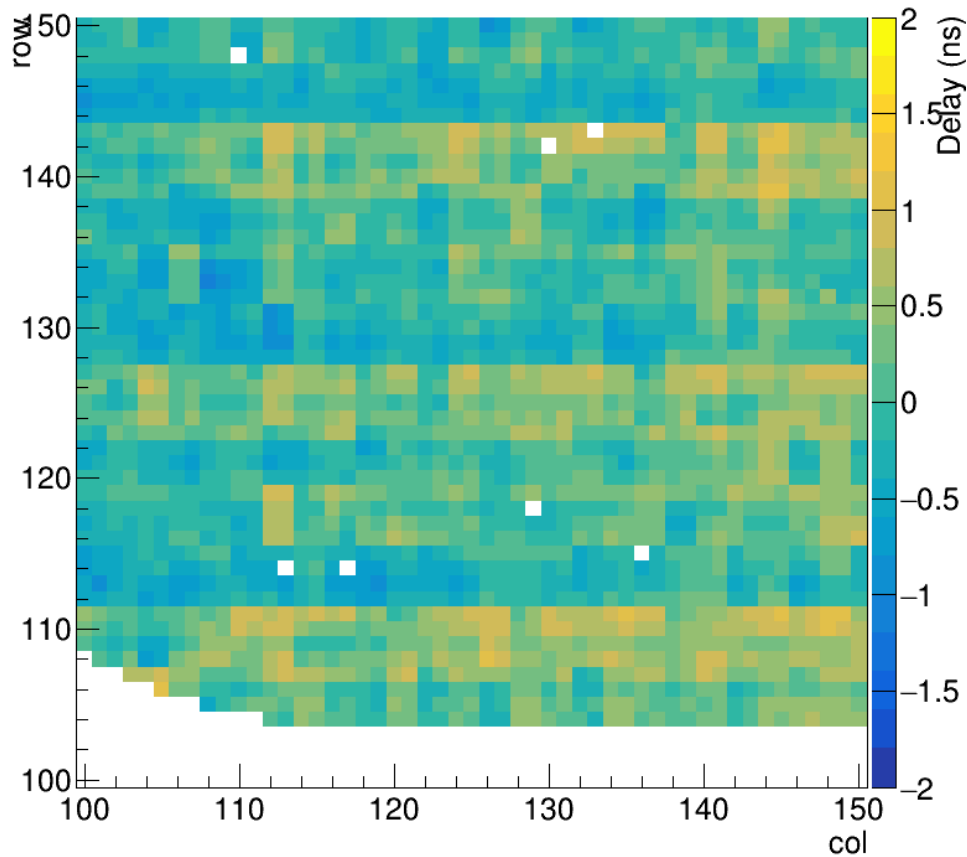
DUT - Trigger (ns)



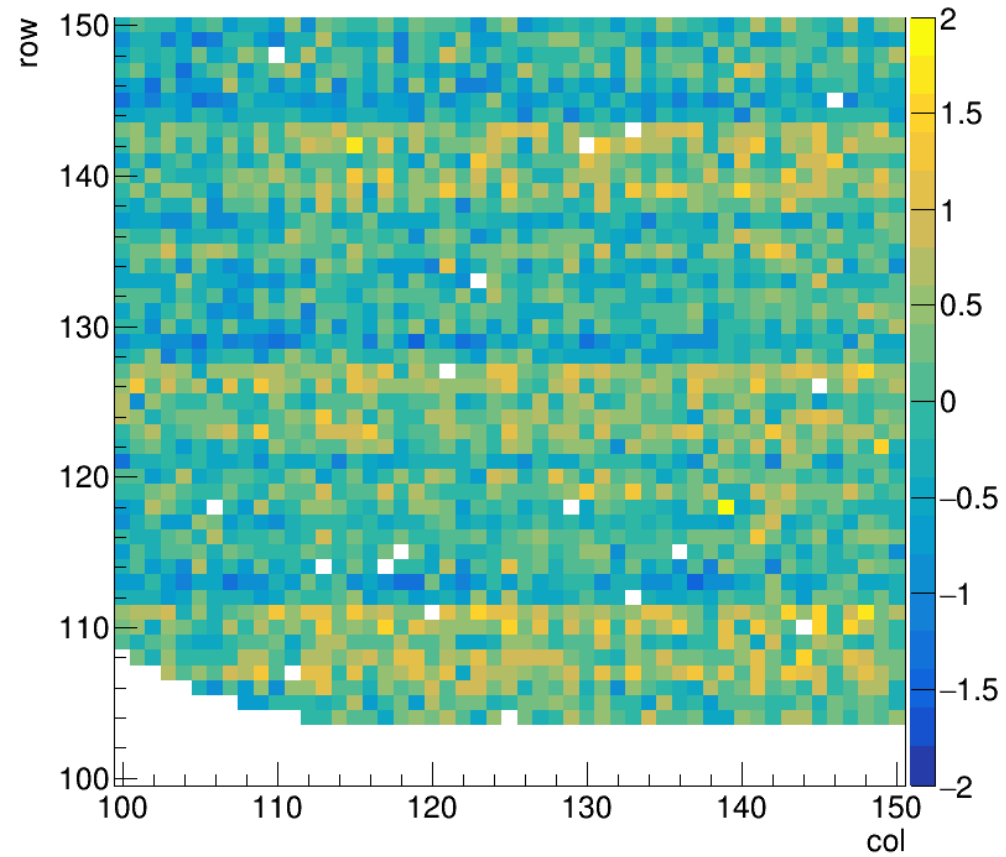
Groups of same delay seem to match up with the superpixels indicated by the grid in the right figure

Compared to testbeam

Laser



Testbeam

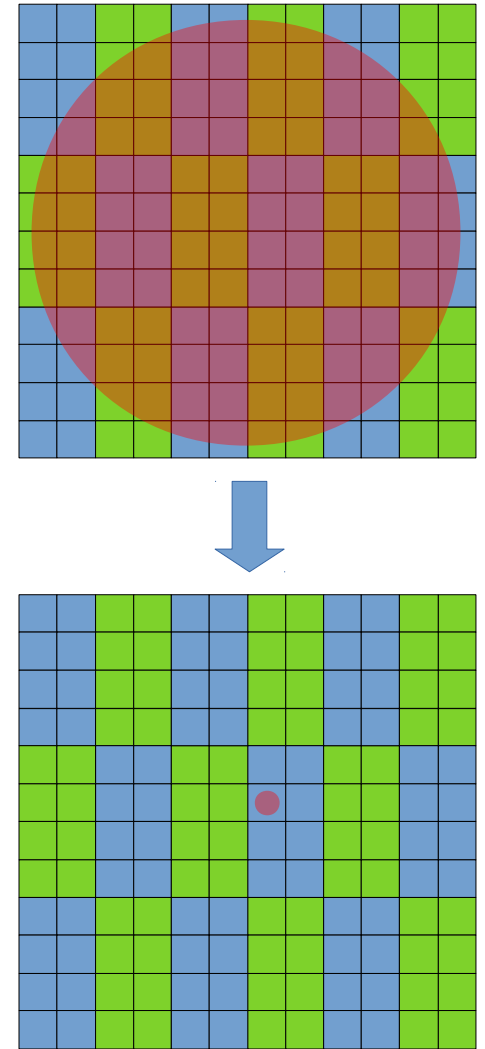
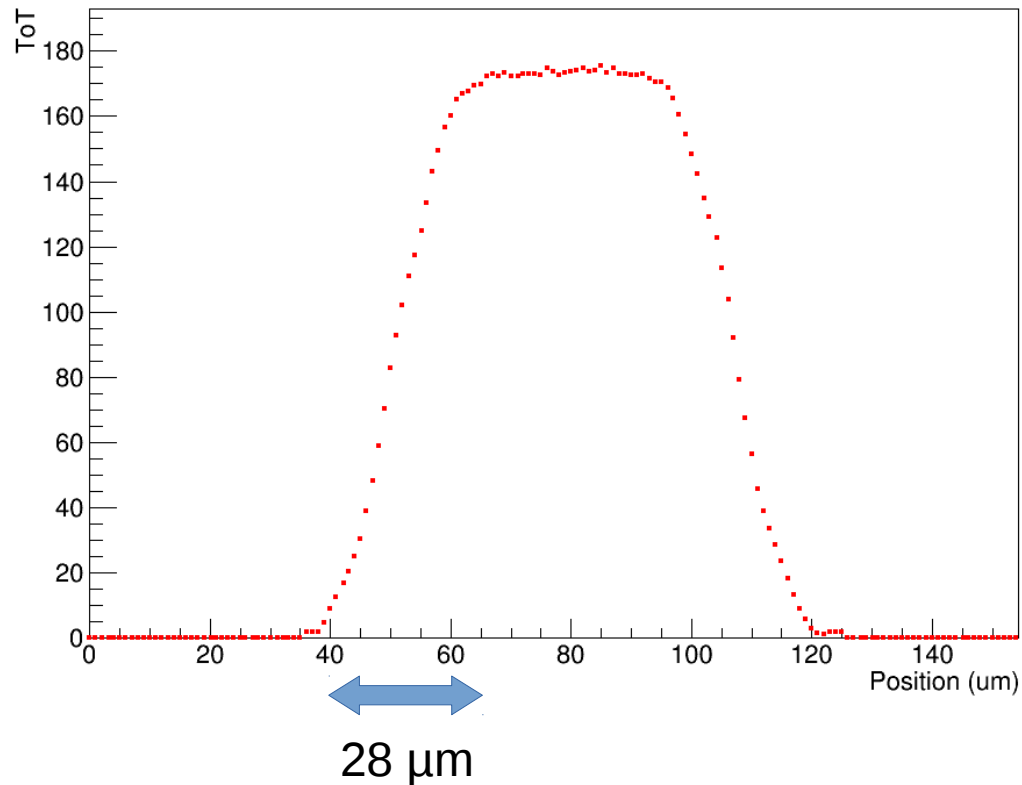


Superpixels seem not to determine the delay in the testbeam (right figure)

New lens

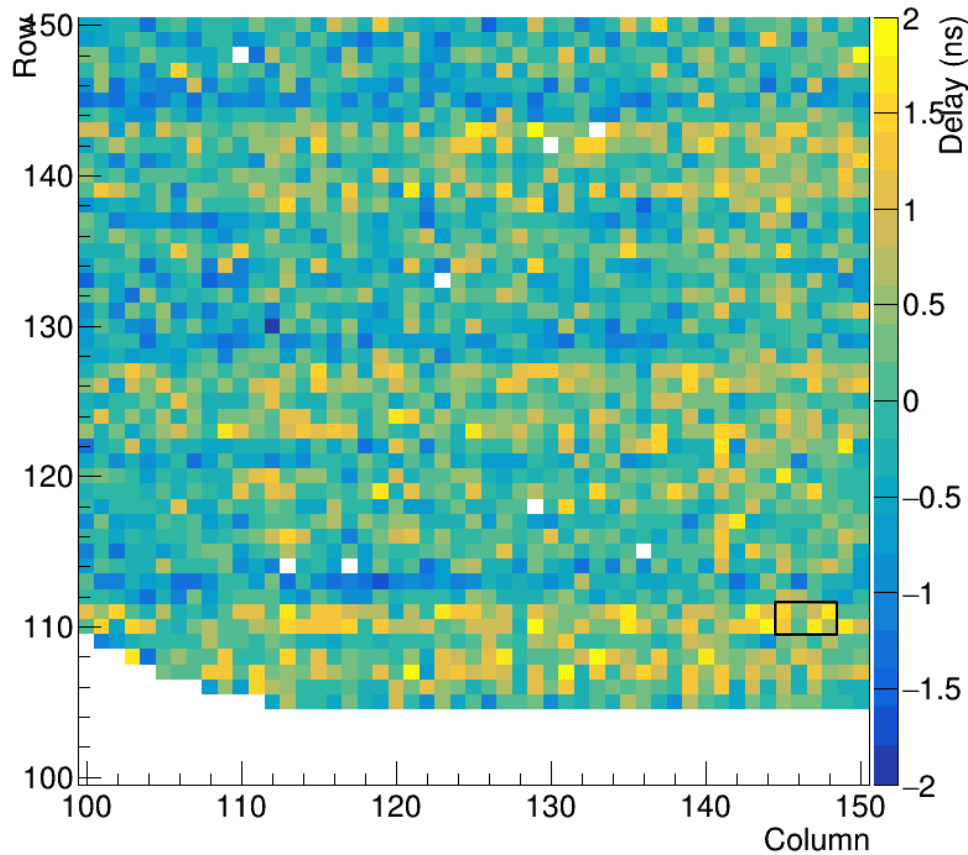
New strategy: decrease spot size to hit only 1 pixel

With old lens this was only possible for ToT < 60, but with new lens up to >180 (@ 10 Ikrum)

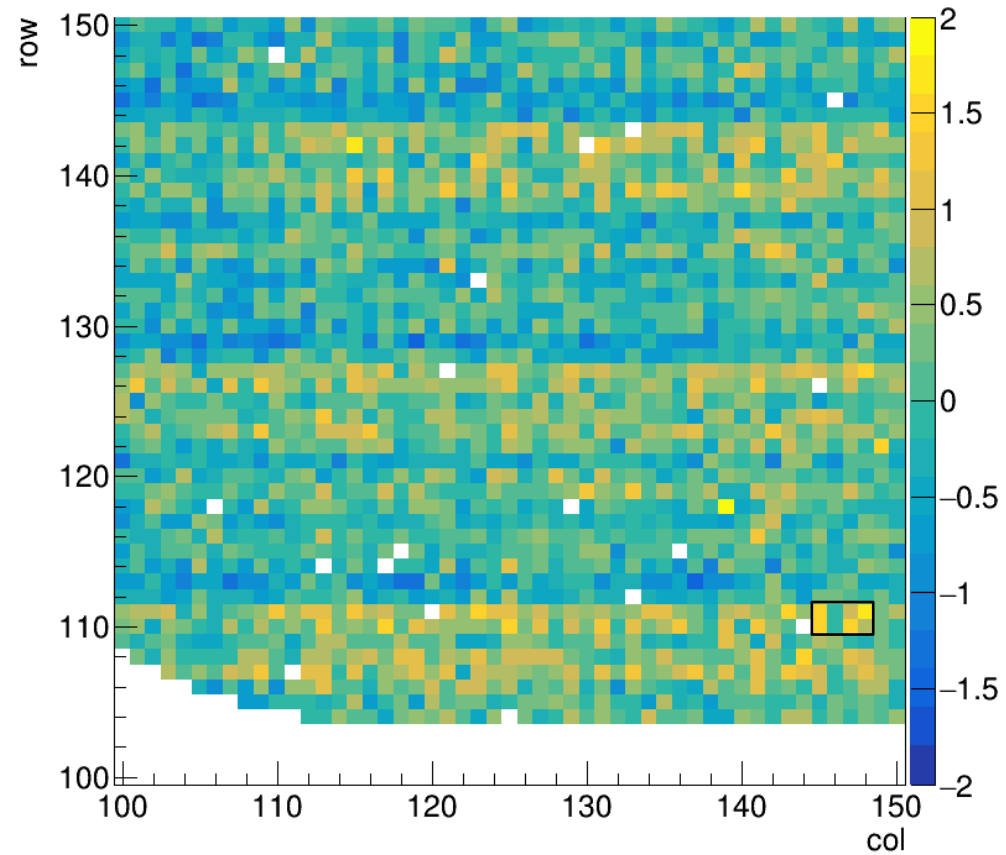


Compared to testbeam

Laser



Testbeam

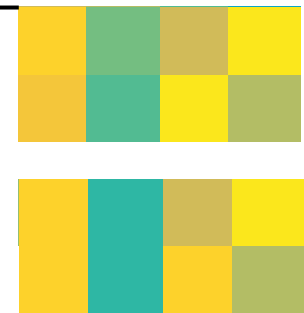


The delay in the test with the laser seems not to be determined by the superpixel anymore

It also matches in some places (see black squares)

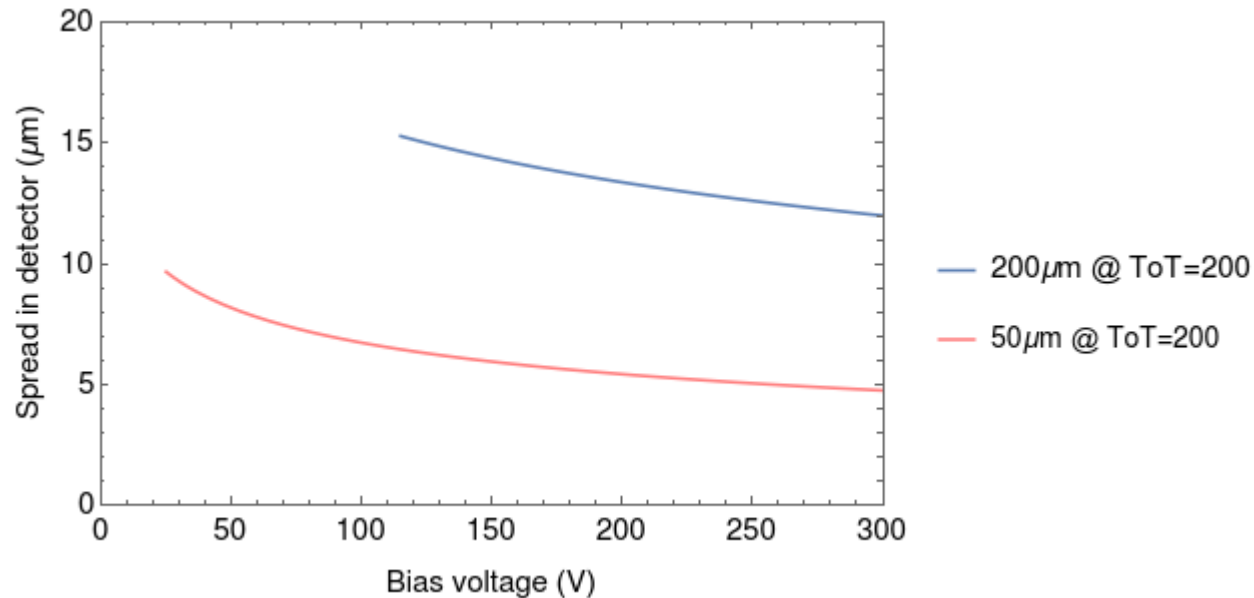
Low statistics for this measurement in the laser (~80 hits per pixel)

Increasing statistics → More pixels will match?



Side note: Spread of charge cloud

Due to smaller spot size of laser, the measured “spot size” is now mostly dominated by diffusion and repulsion of the charge carriers



Therefore the laser spot size for ToT=200 is about 5μm at max (unsure of precise radius at the moment)