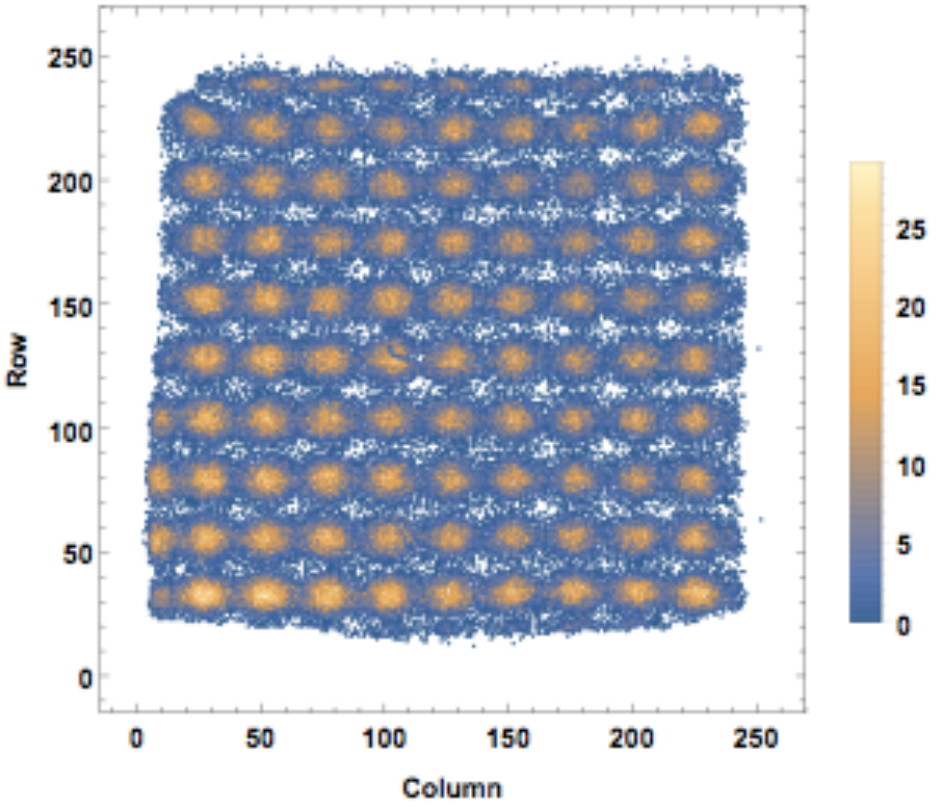
Laser data analysis



Kevin Heijhoff, Fred Hartjes & Peter Kluit

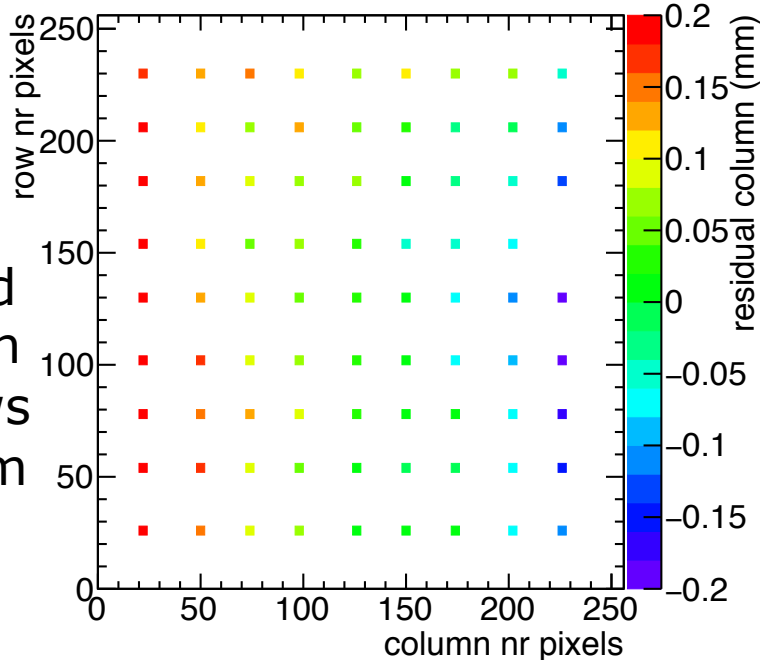
Lepton Collider meeting Nikhef February

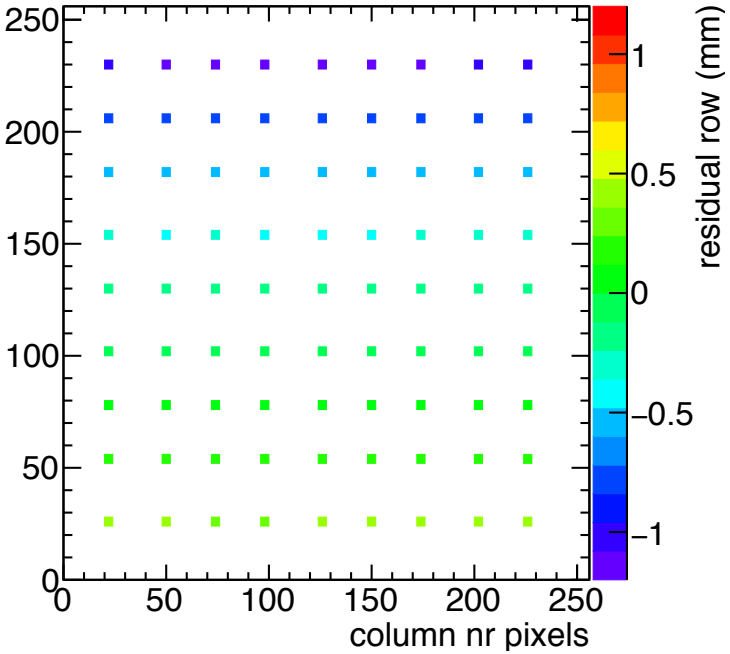
Laser data analysis

Here data at a laser height above the chip of 20 mm

note the z scales

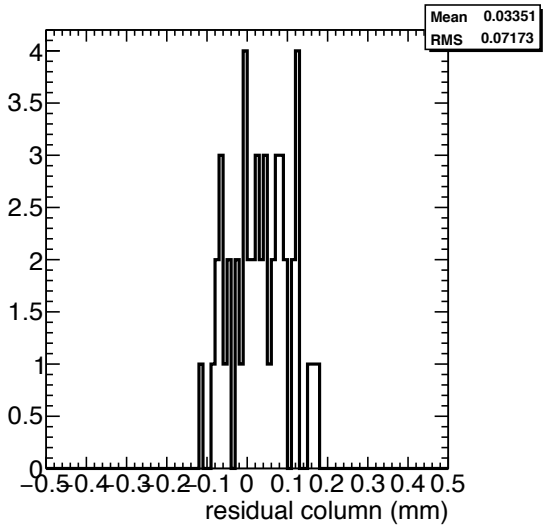
Large Efield deformations in the rows up to -1 mm

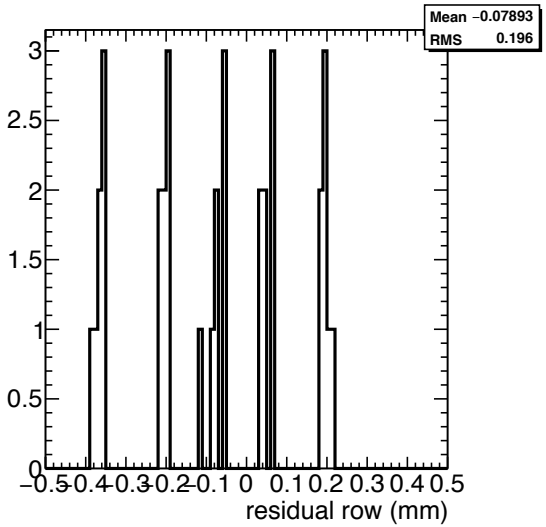




Residual = chip average – laser position

rms cols 70 µm



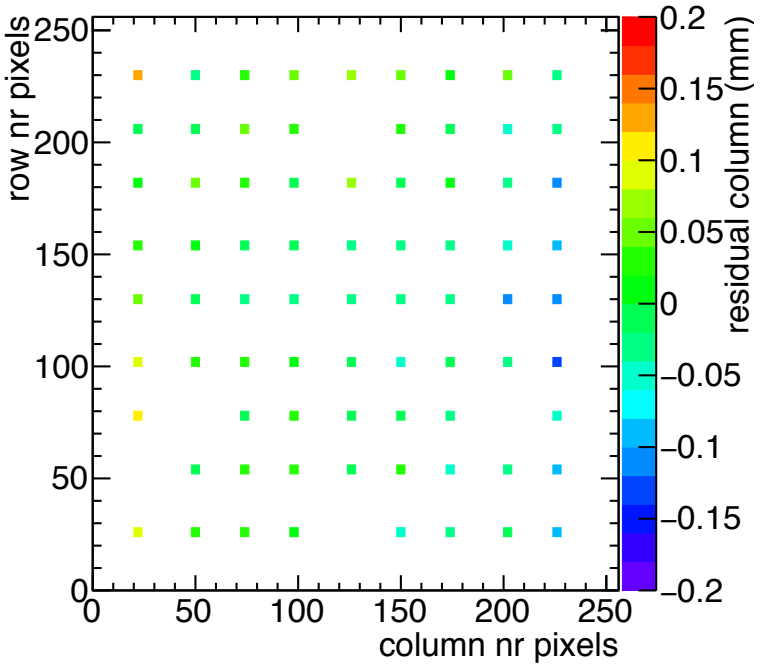


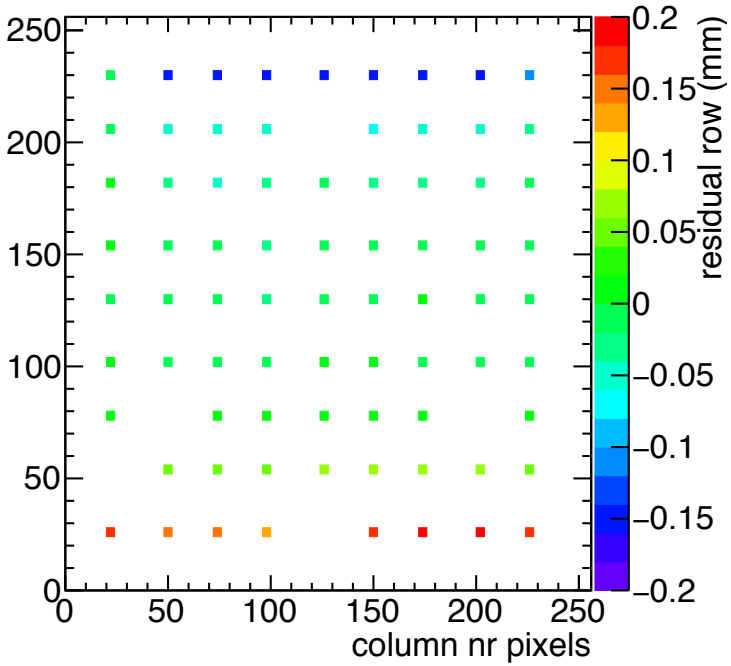
Laser data analysis

Here data at a laser height above the chip of 8 mm

note the scale 0.2

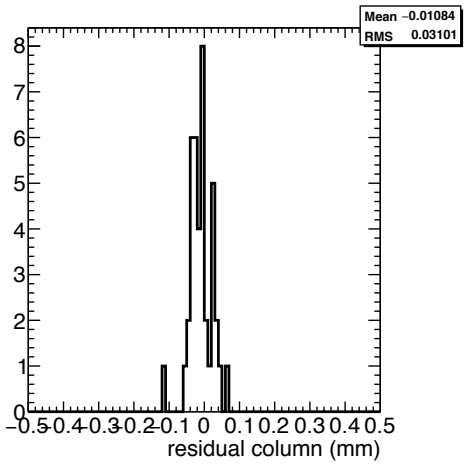
small Efield deformations at edges of chip of 0.2 mm

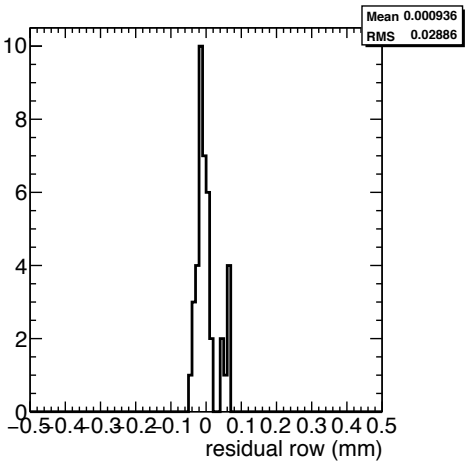




Removing the edge rms 30 µm columns and rows

So closer to chip the deformations are small



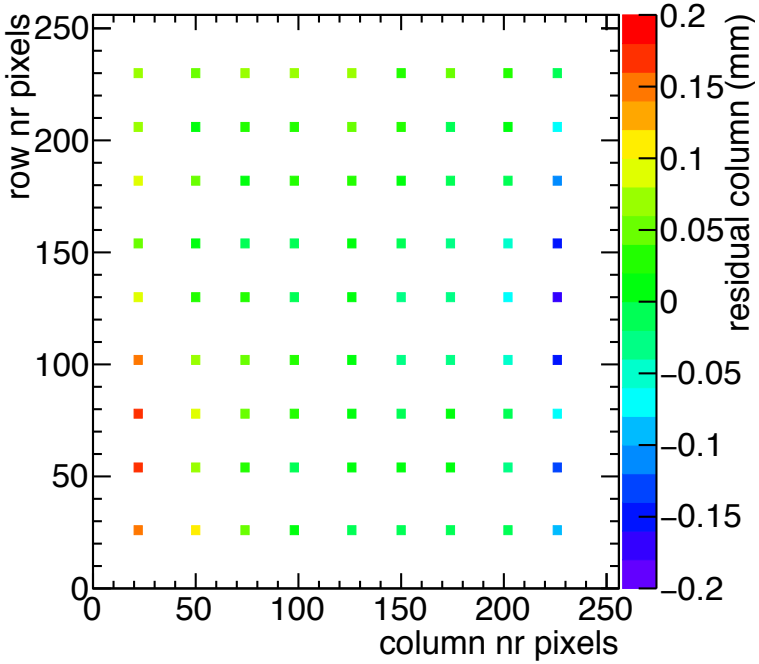


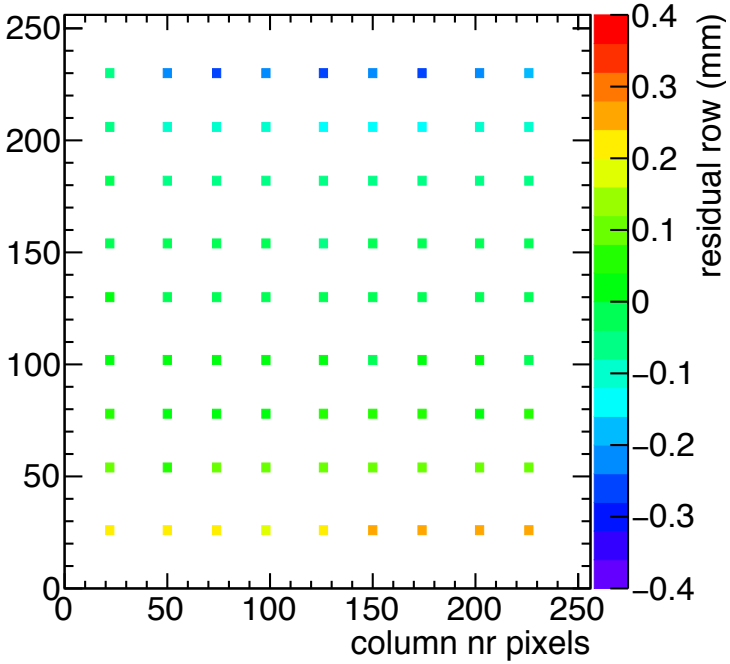
Laser data analysis

Here data at a laser height above the chip of 10 mm

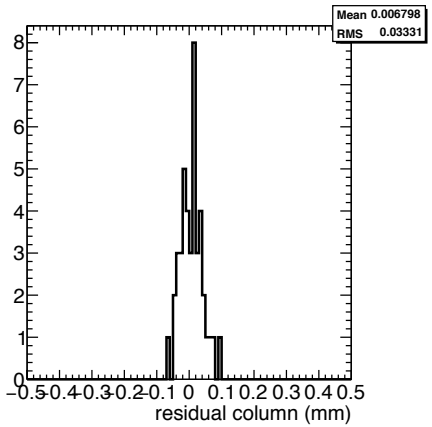
note the scale 0.4

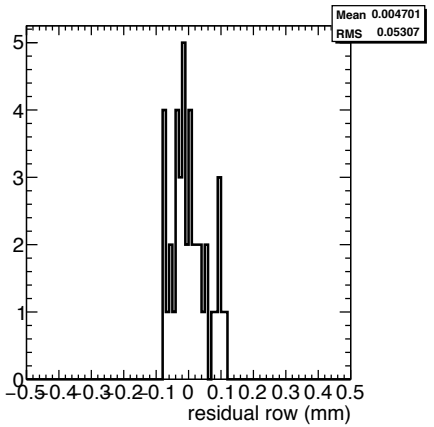
small Efield deformations edges of chip of 0.4 mm

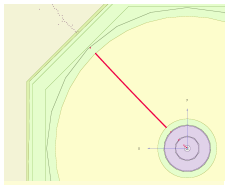




So going from 8 to 10 mm height the row residuals increase due to field distortions







Conclusions
Laser data analysis

There is a problem with field definition for large laser heights (20 mm) that affects the row residuals.

Going to small heights shows that the deformations are reduced: the edge columns and rows are shifted by at most 0.2 mm.
The rms of the distribution (removing the edges) is 30 μm. This is pretty good.