

Element 6 electronics grade single crystal CVD diamond. Al and Ti/Au metallization



- 5U NEC Pelletron Accelerator
- H, He, ^3He , C, N, and O beams.

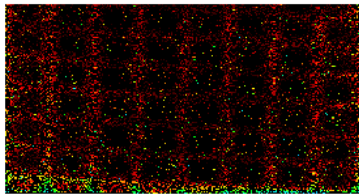


Ion Beam Induced Current (IBIC)

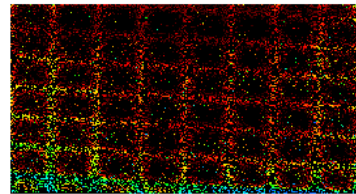
- Record detector response as targeted ion beam swept over surface.
- Up to 5 MeV Alpha particles – low penetration
- Spatially resolve detector response

E6 (3.5mm x 3.5mm)
No Boron
Bias-Back to front
2.5 MeV H

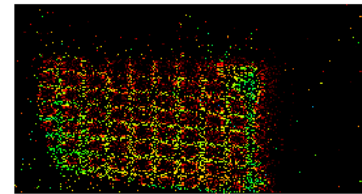
Bias : -20 V



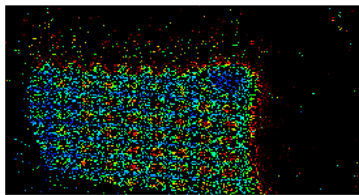
Bias : -40 V



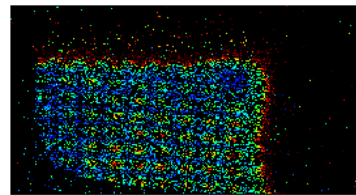
Bias : -40 V



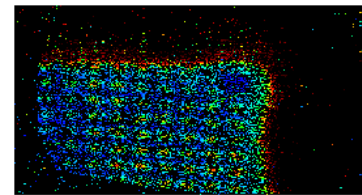
Bias : -60 V



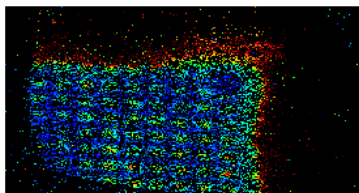
Bias : -80 V



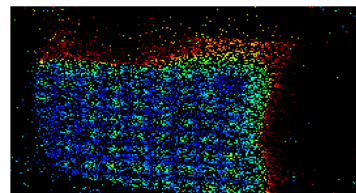
Bias : -100 V



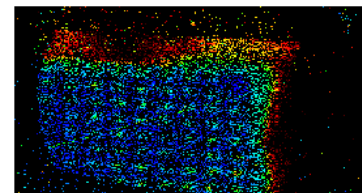
Bias : -120 V



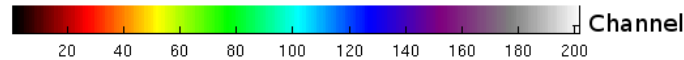
Bias : -140 V



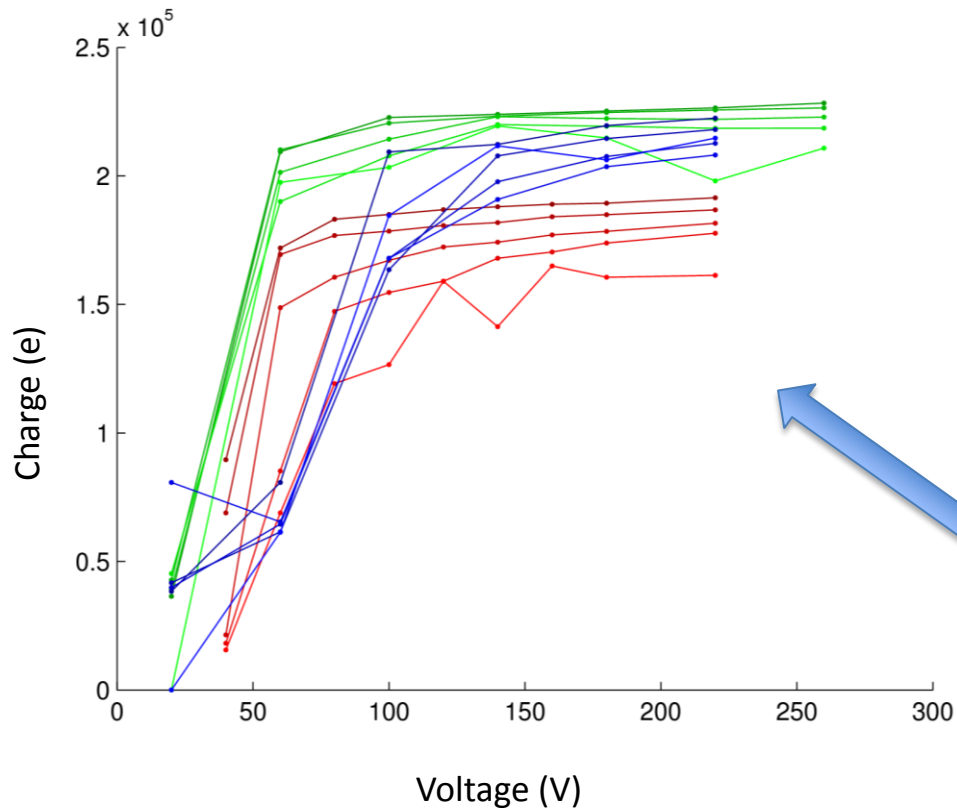
Bias : -160 V



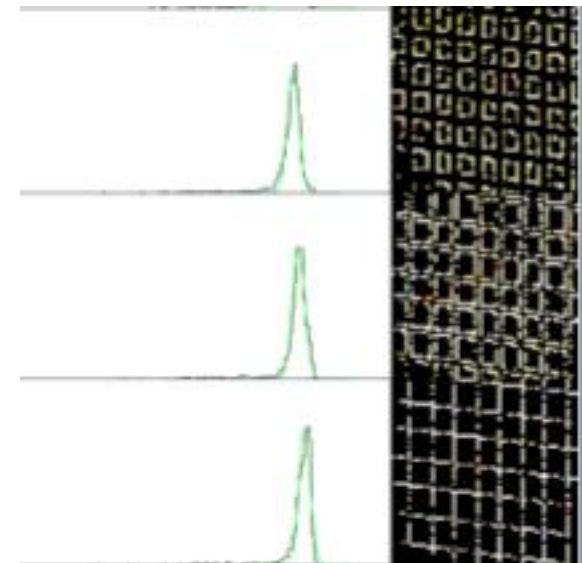
3mm

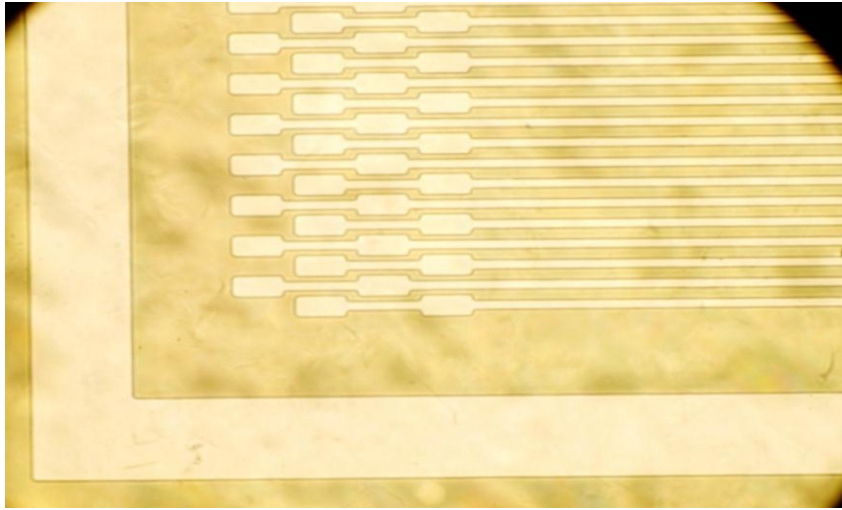


Green, preamp-back, 3 MeV
Blue, preamp-front, 3 MeV
Red, preamp-back, 2.5 MeV

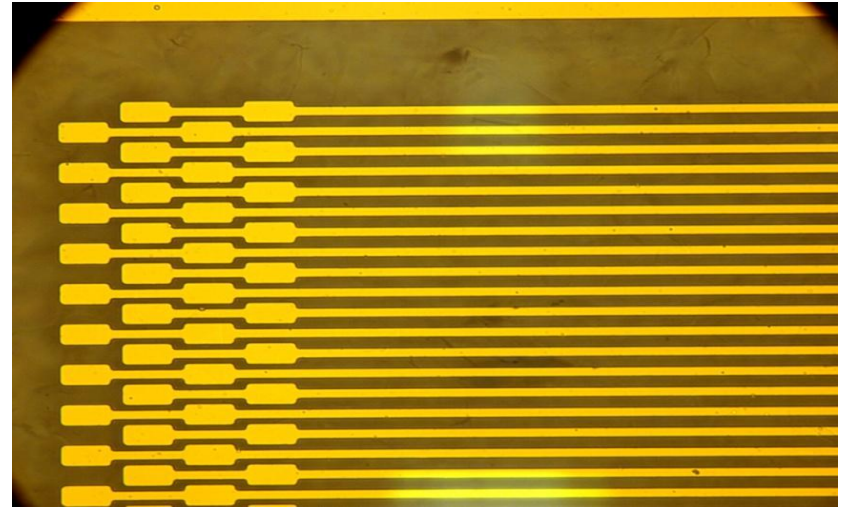


- Look at a set of regions on the device
- Calculate the amount of charge collected as a function of bias voltage





Photoresist pattern



Gold lift off pattern