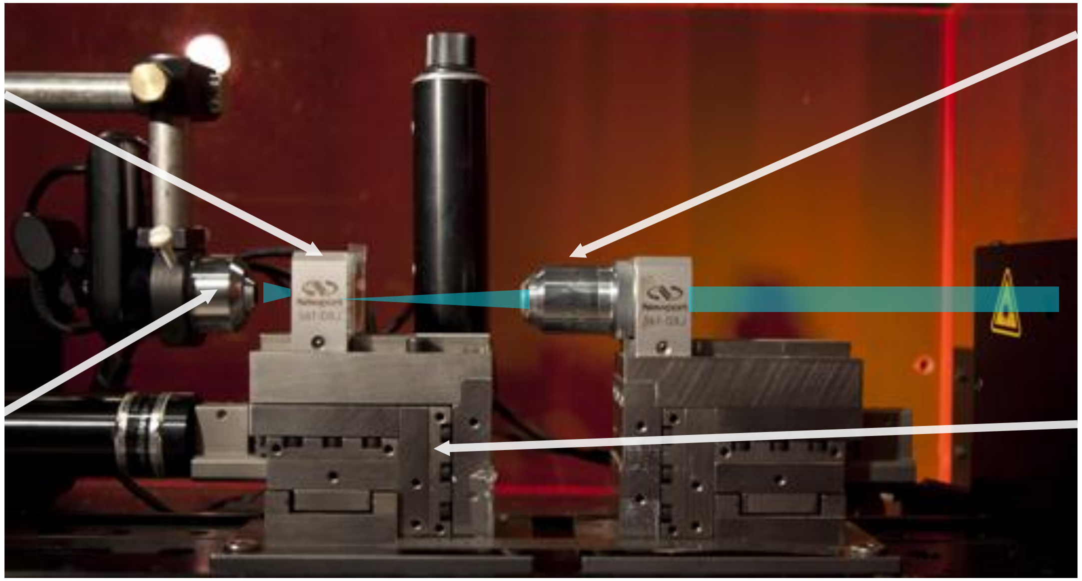
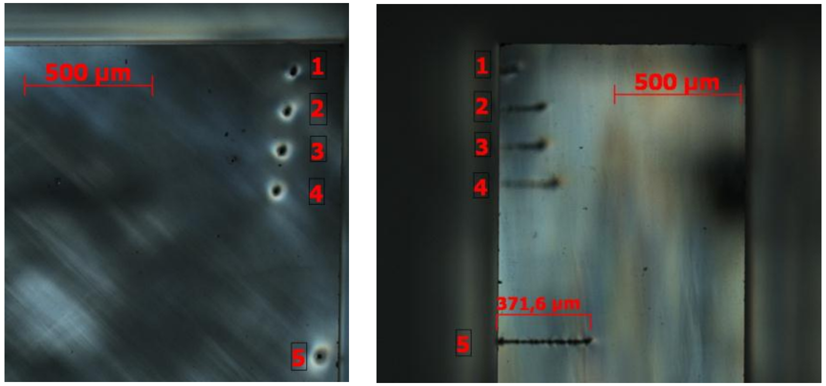
Novel 3D micro-structuring of diamond for radiation detector applications
Enhanced performances evaluated under particles and photons beams.

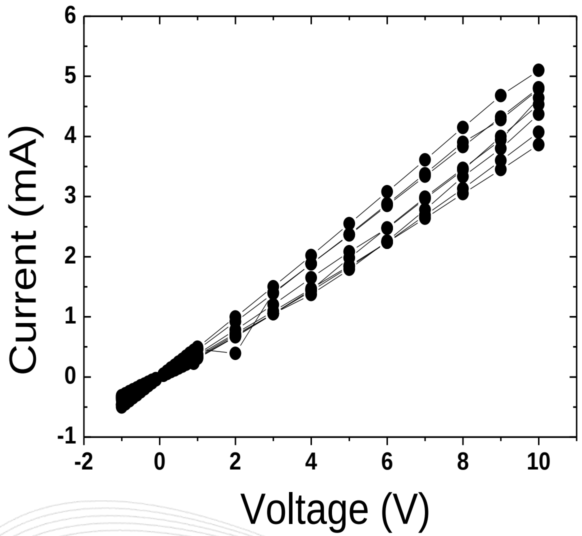
Benoît Caylar[1], Michal Pomorski[1], Alexander Oh[2], Thorsten Wengler[3], Philippe Bergonzo[1]



$\varnothing_{min}$= 20 µm - $Pitch_{min}$=150 µm



Optical microscopy using crossed polarizers



$\rho = 5.7 \times 10^{-1}\ \Omega.cm$
$R_{(500\mu m)} \sim 2k\Omega$

Match with nanocrystalline graphite's resitivity given in literature[1]

[1] T.Ohana, T.Nakamura, A.Goto et al. / Diamond and Related Materials, vol.12 (2003) p.2011.

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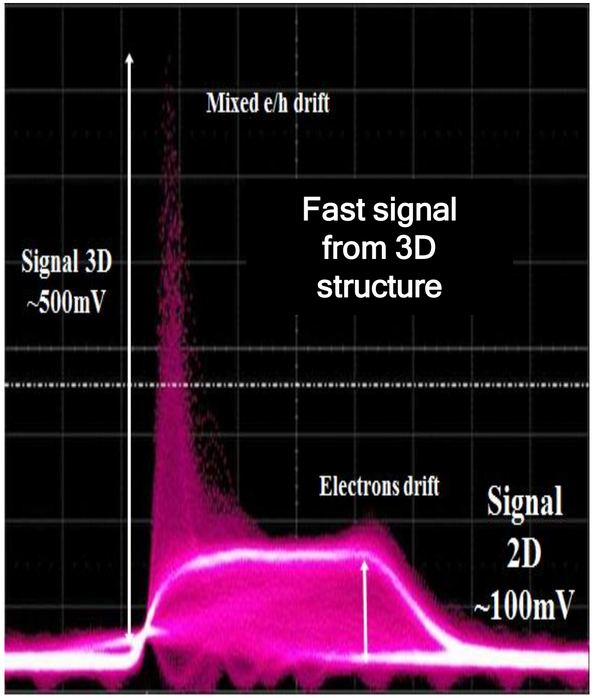
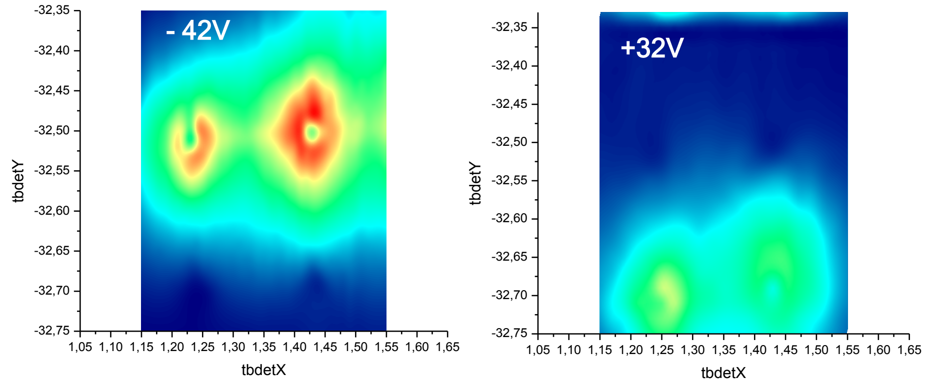
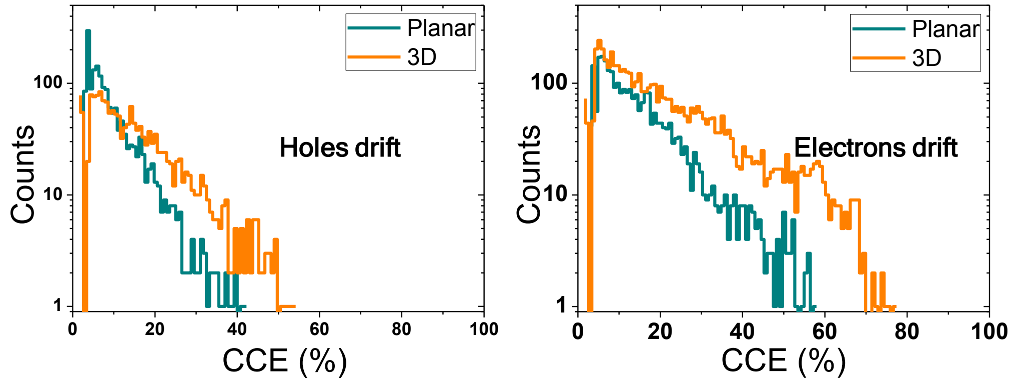


- Transient currents measured on a sc-CVD sample (5,5 MeV α -particles)



- Synchrotron micro-beam mapping of a sc-CVD sample



- CCE measured on a pc-CVD sample (5,5 MeV α -particles)