

# Characterization of CVD-diamonds for radiation detection

*G. Gervino for UniTo & Brevetti BIZZ Collaboration*

Single Crystal CVD Diamond Detectors:

High charge collection efficiency (close to 100%)

High mobility

High spatial resolution

High energy resolution

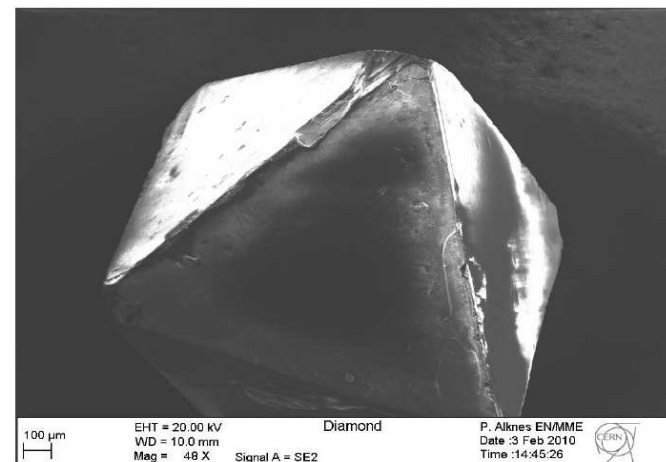
High sensitivity in some applications

Lower saturation field (0.2 V/mm).

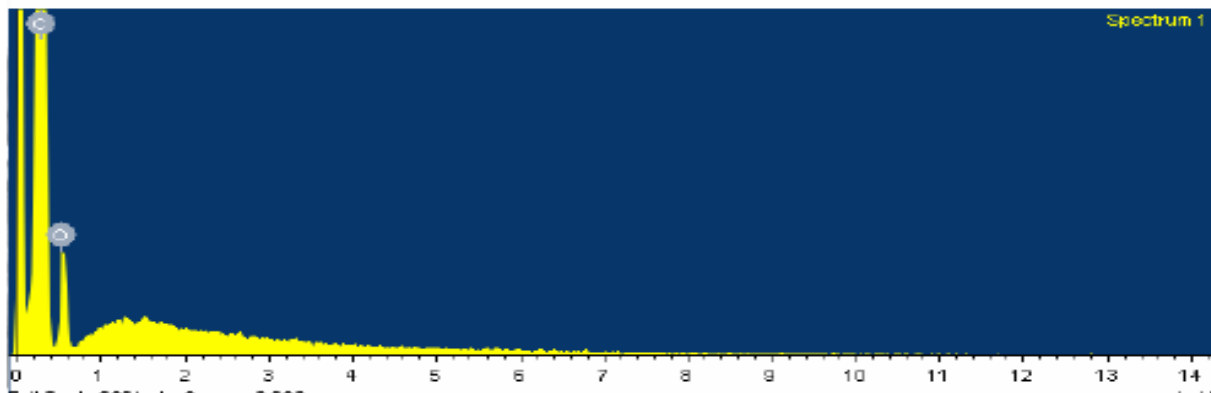
Low energy and angular dependence (X-ray)

Radiation hard

Level of impurities and defects in SC-CVD diamond affects the response to radiation



SEM image of fracture surface of SC-CVD crystal



EDS results from a SC-CVD. No impurities detected over 0.1wt%. The peak at 0.525 keV is a pile-up artefact due to strong C (0.277 keV) signal and may not correspond to the presence of O in the lattice.