

Application of single crystal diamonds for detectors at the ESRF

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A brief introduction is given to the possible applications of diamond as an X-ray detector in synchrotron applications. Diamond is usually not considered as a detector material due to its weak X-ray stopping power. However, this is a great advantage if the goal is to make a semi-transparent detector for non-destructive ‘sampling’ of an X-ray beam. The large bandgap energy of diamond also permits this material to operate at elevated temperatures, opening the possibility of a compact, solid state, white beam monitor. The information already obtained, and problems discovered, in experiments made with polycrystalline CVD diamond detectors will be presented, as well as the potential of ultra-high purity, *single crystal* CVD diamond to resolve these problems”