FRONTIER DETECTORS FOR FRONTIER PHYSICS



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A beam radiation monitor based on CVD diamonds for SUPERB

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CVD diamond particle detectors are presently in use in the CERN experiments ATLAS, CMS, LHCb and ALICE and at particle accelerator laboratories in USA and Japan. This is a proven technology with very fast signal read-out and a very high radiation tolerance suitable for measurements in high radiation environment zones.

The properties of CVD diamonds make them a prime candidate for measuring single particles as well as highintensity particle cascades, for timing measurements on the nanosecond scale and for beam protection systems in hostile environments like regions near the beam pipe.

A Polycrystalline CVD and a single-crystalline CVD diamond sensors, read out with a new generation of fast and high bandwidth SiGe bipolar transistor amplifiers, have been tested for possible applications as radiation monitor and as luminometer for the Super-B project.

Test results with 5.5 MeV alpha particles from a $^{241}{\rm Am}$ radioactive source and from electrons from a $^{90}{\rm Sr}$ radioactive source are presented.

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