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Radiation detection based on CVD diamond

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Diamond is a semiconductor with outstanding material properties such as high radiation hardness, high free carrier mobilities, very low leakage current, and very high thermal conductivity.

Synthetic diamond is therefore a good canditate for very demanding radiation detector applications.

The state of the art of Chemical Vapor Deposition (CVD) diamond detector technology is reviewed and its

applications in several fields, such as high energy physics, radiotherapy and nuclear fusion reactors are described.

Recent innovative developments, such as electric contact fabbrication and front-end electronics design, are also briefly discussed.

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