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Effect of Carbon co-implantation on radiation hardness of IHEP_IMEv2 LGAD

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The radiation hardness of LGAD depends on the distribution and doping concentration of implanted Carbon and Boron. Based on Secondary Ion Mass Spectrometry profile of IHEP_IMEv2 LGAD devices, the impact of implantation dose and thermal load of Carbon to the radiation hardness of LGAD is discussed. A model based on the SIMS data is implemented to fit the acceptor removal coefficient of LGADs and extrapolated to PIN structures. Its validity will soon be examined by the next version of IHEP LGAD.

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