Contribution ID: **65** Type: **WG3 - Radiation Damage - Extreme Fluence**

Study of irradiation characteristics of carbon enriched LGAD for high radiation fluence application

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Carbon enriched LGAD sensors will be used for ATLAS HGTD project, since LGAD with carbon implantation be demonstrated to have good radiation hardness as compared to the one without carbon. Researches of radiation damage to the LGAD and how to improve the carbon process also been studied preliminarily by IHEP. In this project, we plan to do more studies of irradiated carbon enriched sensors by using DLTS and so on, in order to identify the damage caused by radiation and how carbon can improve it. Based on the study, we will also try to improve the radiation performance of LGAD by optimizing the carbon enrichment process and gain layer implantation, such as high energy boron and carbon implantation, and aim to increase the radiation fluence to 7e15neq/cm2. The LGAD with better than 7e15 neq/cm2 radiation performance can be used to HGTD LGAD replacement and high timing detectors for future collider.
link to the document (DRD3 Work Package Project proposal) : https://cernbox.cern.ch/s/IudHhJcJxLD4KLf

Type of presentation (in-person/online)

online presentation (zoom)

Type of presentation (scientific results or project proposal)

project proposal for future work

Primary author: ZHAO, Mei (Chinese Academy of Sciences (CN))

Co-authors: LI, Mengzhao (Chinese Academy of Sciences (CN)); SUN, Weiyi (Chinese Academy of Sciences (CN)); FENG, Yuan (Chinese Academy of Sciences (CN)); LIANG, Zhijun (Chinese Academy of Sciences (CN))

Presenter: ZHAO, Mei (Chinese Academy of Sciences (CN))

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