Contribution ID: **4** Type: **Poster**

Suppression effect of Fe on irradiation of Silicon-based diodes using current-voltage measurements.

In this study, the suppression effects of Fe on irradiation of silicon (Si) diodes were investigated. Diodes fabricated on unimplanted and Fe-implanted p-Si diodes were irradiated with 4 MeV protons to a fluence of 1x1016 p/cm-2 and then characterized prior to and after irradiation using current-voltage (*I-V*) techniques. A decrease in current due to irradiation is more apparent in unimplanted p-Si diode than the Fe-implanted p-Si diode, indicating that the effect of irradiation has been suppressed on the Fe-implanted p-Si diode due to Fe-doping. The diode conduction mechanism for unimplanted p-Si diode changed, while that of Fe-implanted p-Si diode remained constant after proton-irradiation. The diode parameters were also evaluated on the fabricated diodes prior to and after irradiation. The obtained results suggest that Fe-induced defects in Si have improved the radiation-hardness of Si material. Hence, Fe, just like Au and Pt, is a suitable candidate in a bid to improve the radiation-hardness of Si material.

Submission declaration

Original and unplublished

Author: BODUNRIN, Joseph (University of South Africa)

Co-author: Prof. MOLOI, Sabata (Department of Physics, College of Science, Engineering and Technology, University of South Africa, Private Bag X6, Florida, 1710, South Africa)

Presenter: BODUNRIN, Joseph (University of South Africa)