



Contribution ID: 267

Type: **Poster Presentation**

Electrical characterization of n-type silicon diodes semiconductor material doped with tungsten particles.

Thursday, 11 July 2019 15:00 (2 hours)

n-type Silicon has been doped with tungsten particles at ion energies ranging from 50keV to 150keV, silicon was then characterised using Rutherford backscattering spectroscopy and depth profiling for the analysis of the doped material. Schottky barrier diodes were fabricated on the silicon doped with tungsten particles and those that are not doped, AuSb was used as an ohmic while Pd was used as a schottky contact. Current-voltage (I-V) and capacitance-voltage (C-V) measurements were carried out at room temperature (300K). The parameters studied from I-V measurements were saturation current (I_s), ideality factor (η) and schottky barrier height (Φ_{IV}). For the C-V measurements The results show that the diode fabricated show typical diode behavior of silicon diodes and the barrier height is shown to have decreased with the increase in ion energy.

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD, N/A)?

MSc

Primary author: Ms RATLHAGANE, Caroline (Sefako Makgatho Health Sciences University)

Co-author: Dr SITHOLE, Mpho Enoch (Sefako Makgatho Health Sciences University)

Presenter: Ms RATLHAGANE, Caroline (Sefako Makgatho Health Sciences University)

Session Classification: Poster Session 2

Track Classification: Track A - Physics of Condensed Matter and Materials