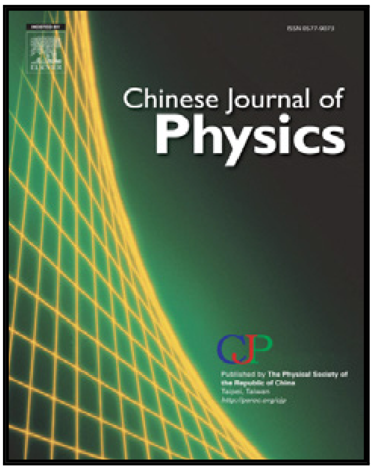

Investigation of the structural and electrical properties of air-annealed ruthenium thin films on 6H-SiC at different temperatures.

Dr Kinnock V. Munthali

PII: S0577-9073(18)30443-X
DOI: 10.1016/j.cjph.2018.05.024
Reference: CJPH 546

To appear in: *Chinese Journal of Physics*

Received date: 23 March 2018
Revised date: 16 May 2018
Accepted date: 21 May 2018

Please cite this article as: Dr Kinnock V. Munthali , Investigation of the structural and electrical properties of air-annealed ruthenium thin films on 6H-SiC at different temperatures., *Chinese Journal of Physics* (2018), doi: 10.1016/j.cjph.2018.05.024

Highlights:

- The RBS of the thin films showed oxidation and diffusion of Ru at 400 ^{o}C & 500 ^{o}C, respectively.
- The XRD analysis of the thin films indicated the formation of RuO_2 and RuSi at 600 ^{o}C.
- The ideality factor of the SBD was seen to decrease with the annealing temperature.
- The series resistance increased astronomically at 700 ^{o}C , indicating a damaged SBD.
- The failure mechanism of the SBD is due to deep inter-diffusion of Ru and Si at the interface.