



Contribution ID: 217

Type: Oral Presentation

Isochronal annealing of argon ion bombarded GaAs with Raman and surface Brillouin scattering

Thursday, 14 July 2011 08:00 (15 minutes)

Semiconductors are important because of their numerous technological applications. As such, there have been a number of investigations on the recrystallization of amorphous GaAs. We present results of the isochronal annealing of an- 140nm amorphous layer of GaAs on a crystalline substrate produced by bombarding with 100 KeV argon ions with a fluence of 5×10^{15} ions/cm². Raman measurements were taken at room temperature which was the base temperature. Sharp peaks characteristic of polycrystalline GaAs were observed at 600o C. Similar experiments have also been carried out with the technique of Brillouin scattering (SBS). SBS is a laser based technique used to study the acoustic phonons and elastic properties of materials. SBS spectra were collected using a 514.5 nm laser in a backscattering arrangement and analysed using a Fabry-Pérot interferometer supplied by Sandercock. Changes in the elastic properties during the isochronal anneal were observed at temperatures below 400o C, in agreement with results previously obtained. The differences in the Raman spectroscopy and SBS results may be explained by the differences in the two techniques.

**Level (Hons, MSc,
 PhD, other)?**

PhD

**Consider for a student
 award (Yes / No)?**

Yes

**Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?**

No

Primary author: Mr JAKATA, Kudakwashe (University of the Witwatersrand)

Co-authors: Dr MATHE, Bhekemusa (DST/NRF Centre of Excellence in Strong Materials, School of Physics, University of the Witwatersrand); Mr SUMANYA, Clemence (DST/NRF Centre of Excellence in Strong Materials, School of Physics, University of the Witwatersrand); Dr WAMWANGI, Daniel (School of Physics, University of the Witwatersrand); Prof. COMINS, Darrell (DST/NRF Centre of Excellence in Strong Materials, School of Physics, University of the Witwatersrand); Mr ERASMUS, Rudolph (DST/NRF Centre of Excellence in Strong Materials, School of Physics, University of the Witwatersrand); Dr NAIDOO, Shunmugam (DST/NRF Centre of Excellence in Strong Materials, School of Physics, University of the Witwatersrand)

Presenter: Mr JAKATA, Kudakwashe (University of the Witwatersrand)

Session Classification: CMPMS1

Track Classification: Track A - Condensed Matter Physics and Material Science