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### Investigation of MOVPE-InSb Quantum Dots grown using TMIn and TDMASb

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# Abstract content <br> &nbsp; (Max 300 words)<br><a href="http://events.saip.org.za/getFile.py/atarget="\_blank">Formatting &<br>Special chars</a>

The size distribution and growth conditions of self-assembled InSb quantum dots (QDs) on a GaSb substrate (2° off (100)) using different V/III ratios were investigated. The QDs were grown using atmospheric pressure MOVPE and a growth temperature of 425°C. Scanning electron microscopy (SEM) of the uncapped QDs revealed that their dimensions ranged from 10 nm to 60 nm in diameter. A scanning probe microscopy (SPM) analysis of the uncapped QDs showed a bimodal size distribution of QDs on the misoriented surface of the substrate and confirmed a reduction in dot density and diameter as the V/III ratio increased from 1 to 3. Also from SPM, the heights of the QDs were determined to range from 5 nm to 19 nm. The experimental results confirm that the V/III ratio affects the size distribution and density of the QDs, which can be attributed to a change in the surface migration length of the indium species during deposition.

### Apply to be<br> considered for a student <br> &nbsp; award (Yes / No)?

Yes

### Level for award<br>&nbsp;(Hons, MSc, <br> &nbsp; PhD, N/A)?

PhD

#### Main supervisor (name and email)<br>and his / her institution

Professor Reinhardt Botha, Reinhardt.Botha@nmmu.ac.za, Nelson Mandela Metropolitan University.

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No

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Yes

Primary author: Mr AHIA, Chinedu Christian (NMMU)

**Co-authors:** Prof. BOTHA, Johannes Reinhardt (NMMU); Mr TILE, Ngcali (NMMU-Physics); Dr URGESSA, Zelalem N. (NMMU)

**Presenter:** Mr AHIA, Chinedu Christian (NMMU)

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