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

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

The size distribution and growth conditions of self-assembled InSb quantum dots (QDs) on a GaSb substrate ( $2^\circ$  off (100)) using different V/III ratios were investigated. The QDs were grown using atmospheric pressure MOVPE and a growth temperature of  $425^\circ\text{C}$ . 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.

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Yes

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

PhD

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

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No

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Yes

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