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Palladium silicide formation on n-Si (111) By Thermal Annealing

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Abstract content
   (Max 300 words)
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Palladium Schottky contacts were fabricated on epitaxially grown n-type Silicon (111) by resistive deposition. Current-voltage (I-V), capacitance- voltage (C-V) measurement techniques were used to characterise the as deposited and annealed Pd/n-Si Schottky contacts. These contacts were annealed at temperatures ranging from 200℃ to 700℃, in steps of 100℃ for ten minutes at each temperature. The ideality factor increased from 1.2 for as deposited to 1.6 after annealing at 700℃ while the Schottky barrier height (SBH) decreased from 0.69 to 0.64 eV as the annealing temperature increased. In this study, silicides seem to start forming at 200℃ where the ideality factor is lowers to a value of 1.1 and the SBH is at its highest value of 0.70eV. The Rutherford backscattering Spectroscopy (RBS) technique was used to verify temperatures at which Pd2Si was formed. The results obtained suggest that the Pd2Si silicide phase begins to form at 200℃ and at 400℃ it is completely formed.

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Mmantsae Diale mmantsae.diale@up.ac.za
University of Pretoria

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Primary author: Ms DANGA, Helga (Uninersity of Pretoria)

Co-authors: Prof. AURET, Danie (University of Pretoria); Dr DIALE, Mmantsae (University of Pretoria); Mr COELHO, Sergio (University of Pretoria)

Presenter: Ms DANGA, Helga (Uninersity of Pretoria)

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