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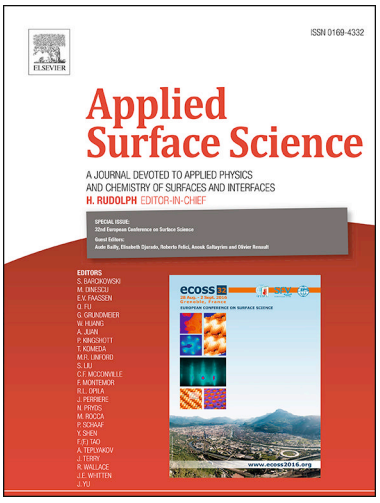


Full Length Article

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# Growth of single-layer graphene on Ge (100) by chemical vapor deposition

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## Abstract

The integration of graphene into nanoelectronic devices is dependent on the availability of direct deposition processes, which can provide uniform, large-area and high-quality graphene on semiconductor substrates such as Ge or Si. In this work, we synthesised graphene directly on p-type Ge (100) substrates by chemical vapour deposition. The influence of the $CH_4$:$H_2$ flow ratio on the graphene growth was investigated. Raman Spectroscopy, Raman mapping, Scanning Electron Microscopy, Atomic Force Microscopy and Scanning Tunnelling Microscopy/Scanning Tunnelling Spectroscopy results showed that good quality and homogeneous monolayer graphene over a large area can be achieved on Ge substrates directly with optimal growth conditions.

**Keywords:** Graphene, Germanium, Raman Spectroscopy, STM/STS, AFM.

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