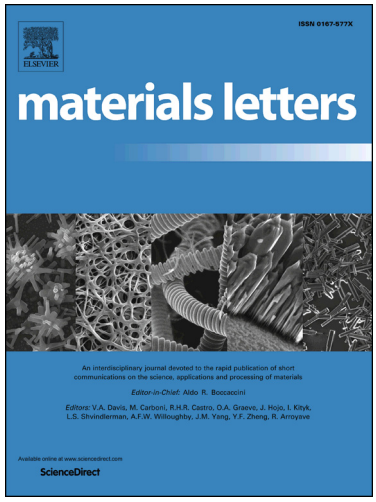

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Effects of Al thickness on one-step aluminium-assisted crystallization of Ge epitaxy on Si by magnetron sputtering

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Abstract

The effects of Al layer thickness on one-step aluminium-assisted crystallization of Ge on Si have been investigated and a better understanding of the Ge growth mechanism has been obtained. The thickness of the final Ge layer is larger than the initial Al layer. The Ge growth can be divided into two stages: (i) a predominantly-vertical growth until the Ge reaches the Al surface followed by (ii) a predominantly-lateral growth with a slow vertical growth rate in order to form a continuous film. The results suggest that surplus Ge is required to obtain continuous Ge layers in one-step aluminium-assisted crystallization.

Keywords One-step aluminium-assisted crystallization; Germanium; Epitaxy; Growth mechanism; Magnetron sputtering

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