

Structural improvement of SiGe films by C and F implantation and solid phase crystallization

A. Rodríguez Domínguez; J. Olivares Roza; J. Sangrador García; T. Rodríguez Rodríguez; C. Ballesteros Pérez; M. Castro Ponce; R.M. Gwilliam

Abstract-

The crystallization kinetics and film microstructure of poly-SiGe layers obtained by solid-phase crystallization of unimplanted, C and F-implanted amorphous SiGe films have been studied. After crystallization, the F and C implanted SiGe films show larger grain sizes, both in-plane and perpendicular to the surface of the sample, than the unimplanted SiGe films. Also, the (111) texture is strongly enhanced when compared to the unimplanted SiGe or Si films. The structure of the C implanted SiGe samples consists of a mixture of grains with well defined contour and a small number of quasi-dendritic grains. These samples also show a very low grain size dispersion. (C) 2001 Elsevier Science B.V. All rights reserved.

Index Terms- si-ge, ion implantation, solid phase crystallization, thin film transistors, silicon ion-implantation, lpcvd

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