

Abstract Submitted
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PECVD growth of SiGe layers for high speed devices and MEMS.

SRINIVASAN KANNAN, University of Utah, DAVID ALLRED, Brigham Young University., CRAIG TAYLOR, University of Utah — We will report on SiGe layers deposited by Plasma Enhanced Chemical Vapor Deposition (PECVD; MV Systems, Colorado) for use in high speed devices, MEMS and Bolometry. Increasing the germane concentration allows the deposition temperature to be decreased, which decreases the thermal conductivity of the samples and improves their properties for bolometry. The samples were deposited up to 580°C and doped with either diborane or phosphine. Films as deposited had predominantly <111> texture and some <110> texture as determined by X-ray diffraction. Annealing produced crystalline material as determined by resistivity and confirmed by X-ray diffraction with no evidence of cracking. Annealing tends to produce a variation of crystallite orientation. The crystallite sizes and orientations in the films will be discussed. Spectroscopic ellipsometry provided thickness and alloy composition. Research supported in part by NSF under grant # 0073004.

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