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Elastic properties of chalcogenide based phase change memories by surface Brillouin scattering

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Chalcogenide based alloys continue to be intensively investigated as suitable candidates for universal memory applications. This is driven by their fast and reversible phase transitions (ns) and their scalability potential. Phase In this work the acoustic hardening of chalcogenide thin films on (100) Si is investigated to establish the changes in the bulk and shear modulus in the amorphous and crystalline phase by surface Brillouin scattering. X-ray Reflectometry has been used to extract film thickness and density requisite parameters for simulation of velocity dispersion curves. Surface Brillouin studies phase change samples have shown the Rayleigh surface acoustic wave and higher order guided modes thus indicating a case of a slow on fast film substrate configuration. The low surface roughness has been determined by X-ray Reflectometry to be less than 0.2nm for all the films. Applying the elastodynamic surface Green function approach determined the c_{11} and c_{44} in the range 40-30 GPa and 15 -10 GPa respectively.

Apply to be considered for a student award (Yes / No)?

NO

Level for award (Hons, MSc, PhD, N/A)?

N/A

Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

yes

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