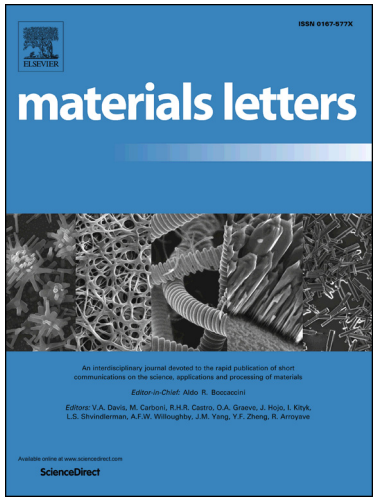

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Amorphisation effect in binary tellurides under low energy Ar^+ ion bombardment

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Abstract

Amorphisation effect on the surface of SnTe and GeTe samples under low Ar^+ ion energy sputtering (160 eV) has been firstly observed. Scanning electron microscopy and Raman spectroscopy methods were used for the investigation. Microscope images show that ion bombardment changes significantly the morphology of SnTe and GeTe sample surfaces. Comparative Raman spectroscopy studies of the as-prepared and sputtered surfaces revealed that sputtering changes not only the surface morphology, but also the crystal structure of samples. Due to sputtering, the initial crystalline GeTe sample surface completely changed to amorphous, while the SnTe sample surface changed to a mixed amorphous-crystalline structure. This means that on the surface of *IVB* group binary tellurides an amorphisation can be evoked by low energy Ar^+ ion bombardment, up to a few hundred electron volts energy.

Keywords: Raman spectroscopy; tellurides; amorphisation; low energy ion bombardment;

1. Introduction

Since the discovery that chalcogenides are good media for information storage application [1], a large number of researchers have focused on chalcogenide materials and their applications in data storage devices. Main advantages of chalcogenide materials in this field are the high cyclability, long-term stability, and fast changes between amorphous-crystallization structures [2]. Because of the wide applicability to these materials it is very

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