

## Chemical states of amorphous and crystalline Ge<sub>2</sub>Sb<sub>2</sub>Te<sub>5</sub> by using high-resolution XPS with the synchrotron radiation

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Ge<sub>2</sub>Sb<sub>2</sub>Te<sub>5</sub> (GST) was investigated to find difference of chemical states between amorphous GST (*a*-GST) and crystalline GST (*c*-GST) by using high-resolution x-ray photoelectron spectroscopy (HRXPS) with synchrotron radiation. To remove the native oxide layer of 20 nm thickness in *a*-GST, which was performed by Ne<sup>+</sup> ion sputtering at the beam energy of 0.6 kV for 1 hour. And then *c*-GST was obtained from the clean *a*-GST after annealing at 180 °C for 30 minutes in UHV. The crystalline structure of GST was confirmed by XRD and HRTEM. Chemical states of *a*-GST and *c*-GST were confirmed by core-level spectra of the Ge 3*d*, Sb 4*d*, and Te 4*d* by using HRXPS. We assume that the fine difference of chemical states between *a*-GST and *c*-GST is due to the atomic structure.

### 참고문헌

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