

Fig. 1 SEM images of  $\text{Ge}_{0.84}\text{In}_{0.16}\text{Te}$  (a),  $\text{Ge}_{0.81}\text{In}_{0.19}\text{Te}$  (b) and  $\text{Ge}_{0.60}\text{In}_{0.40}\text{Te}$  (c) films.

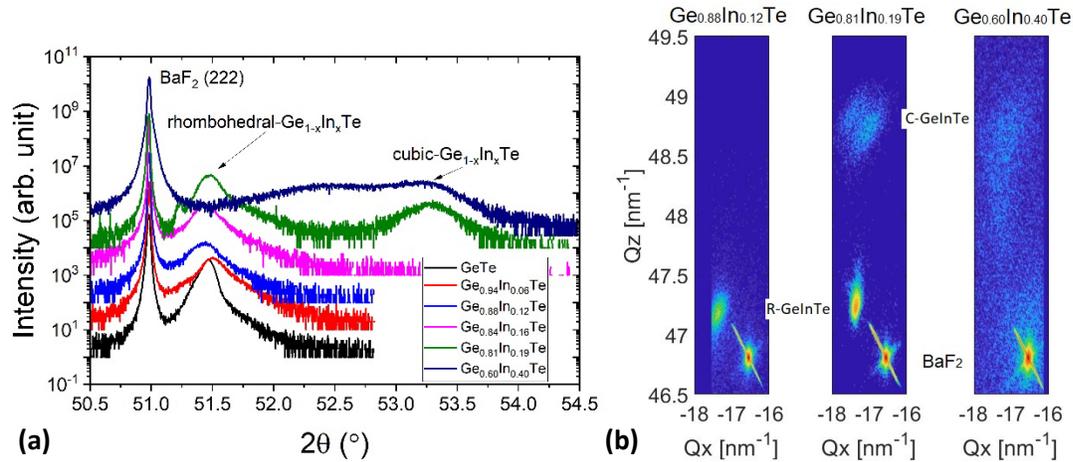


Fig. 2 (a) XRD  $\omega$ - $2\theta$  scan along the (222) plane of  $\text{BaF}_2$  substrates for a series of  $\text{GeInTe}$  films. (b) RSMs around the asymmetric  $\text{BaF}_2(224)$  Bragg peaks with  $Q_z \parallel \text{BaF}_2[111]$  and  $Q_x \parallel \text{BaF}_2[11-2]$ .

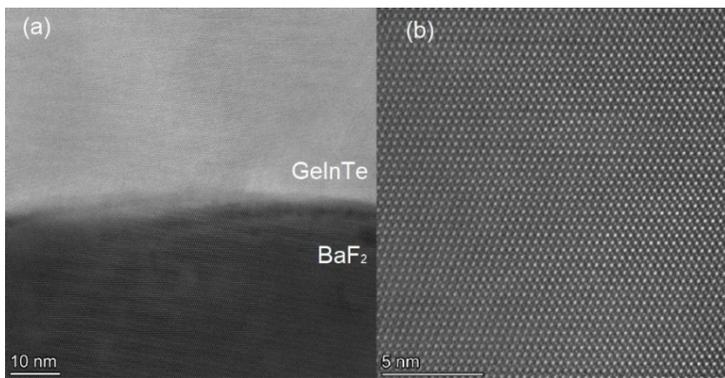


Fig. 3 (a) TEM images of a  $\text{GeInTe}/\text{BaF}_2(111)$  interface. (b) HRTEM image of a  $\text{GeInTe}$  lattice.



Fig. 4 Energy dispersive X-ray (EDX) mapping analysis of composites at  $\text{GeInTe}/\text{BaF}_2(111)$  interface.

## References

- <sup>1</sup>Kriener, M., et al. "Evolution of electronic states and emergence of superconductivity in the polar semiconductor  $\text{GeTe}$  by doping valence-skipping indium." *Physical Review Letters* 124.4 (2020): 047002.
- <sup>2</sup>Giussani, Alessandro, et al. "On the epitaxy of germanium telluride thin films on silicon substrates." *physica status solidi (b)* 249.10 (2012): 1939-1944.