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Synthesis of Novel Bi/Sb Modified Chalcogenide Glasses¹

TRAVIS HODGE, Austin Peay State University — Chalcogenide glasses (ChG) are considered as the most convenient and inexpensive media for applications in modern photonics, combining high IR transparency, excellent fiber drawing capability and largest optical nonlinearities reported to date. The $\text{Bi}_x(\text{GeSe}_4)_{33.3-x/3}(\text{GeTe}_4)_{33.3-x/3}$ (GeS_4)_{33.3-x/3} (x=0,1,5), $\text{Bi}_x(\text{GeSe}_4)_{60-x/3}(\text{GeTe}_4)_{20-x/3}(\text{GeS}_4)_{20-x/3}$ (x=0,1,5) and $\text{Bi}_x\text{Ge}_{20}\text{Sb}_{20x}\text{Se}_{20}\text{S}_{20}\text{Te}_{20}$ (x=0,1,5) chalcogenide systems were examined in order to form bulk glasses by conventional melt-quench method. The optimal conditions for the obtaining amorphous samples have been worked out. Obtained glasses were characterized by X-ray Diffraction (XRD) and thermal analysis techniques.

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