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Optical property modification by Sb addition into $As_{40}Se_{60}$ alloys

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Abstract: : The present report shows the optical property modification due to the addition of Sb matrix into $As_{40}Se_{60}$ compound. There is no structural change between $As_{40}Se_{60}$ and $As_{40}Se_{58}Sb_{02}$ alloy which is confirmed from the X-ray diffraction study. The transmission is found to be decreased with addition of Sb where as the optical absorption increases. The optical band gap is found to be decreased with Sb incorporation into $As_{40}Se_{60}$ thin film. The degree of disorderness1 increases which is reflected from the Tauc parameter and Urbach energy. The width of the localized state increases thus decreasing the optical band gap.

Key words: Amorphous semiconductor; Chalcogenides; Optical property; Band gap; Thin film.

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[Full Paper]