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Kinetics of Photo-Response of Arsenic Sulphide Thin Films¹ JOSH ALLEN, JONATHAN BUNTON, MARIA WHITE, CAITY THOMAS, Austin Peay State University, STANISLAV S, MIROSLAV VLCEK, University of Pardubice, TETYANA IGNATOVA, Lehigh University, ANDRIY KOVALSKIY, Austin Peav State University — Thin films of chalcogenide glasses are attractive materials for various optical applications due to their transparency in IR region, high refractive index and numerous photoinduced optical effects. In-situ kinetics of photodarkening in thermally deposited and spin coated thin films of different compositions within As(x)S(100-x) system have been studied in dependence on light energy and intensity. It was found that in thermally deposited films the high-energy UV irradiation causes much faster and more pronounced reversible optical changes comparatively to the bangap radiation of the same intensity. Additionally irreversible part is much longer for the bandgap light irradiated thin films too. It was established that decrease of As content results in increase of photoinduced response. At the same time, spin coated films revealed significant reversible photo induced effects when exposed to intense (~200 mW) UV light and almost complete photostability to the bandgap light, Structure of freshly prepared and irradiated films was studied by Raman microscopy

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