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Fluorescence of Erbium Dopant in CsCl-Ga-Ge-S glasses for IR applications JONATHAN BUNTON, Austin Peay State University, OLEH SHPOTYUK, Jan Dlugosz University, LAURENT CALVEZ, Universite de Rennes, ROMAN GOLOVCHAK, Austin Peay State University — Over the course of many investigations, CsCl modified Ga-containing germanium sulfide glasses and ceramics have proven to have one of the best host matrixes for rare-earth element doping, creating an ideal material for optical sensing, as active medium for lasers, or in optical amplifiers and broad band sources. This particular study investigates the room- and cryogenic-temperature (via liquid nitrogen) fluorescence of $65\text{GeS}_2\text{-}25\text{Ga}_2\text{S}_3\text{-}10\text{CsCl}$ glasses doped with Er. The emission spectra were recorded in 1000-1700 nm wavelength range, using excitation wavelengths from 300-950 nm (using Horiba Fluorolog-3 spectrometer). At room temperature, strong emission lines at $\sim 1.55\text{ }\mu\text{m}$ corresponding with $\sim 530\text{ nm}$ excitation wavelength were observed in Er-doped samples. At liquid nitrogen temperature, the excitation wavelength for this emission line gradually shifted towards lower values ($\sim 400\text{-}450\text{ nm}$). These observed emission lines agree well with known energy level transitions of Er^{3+} ions incorporated in the glass matrix.

Jonathan Bunton
Austin Peay State University

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