

Abstract Submitted  
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**Fluorescence spectroscopy and structure of erbium doped tin fluorophosphate glass** JEREMY TRIMBLE, ROMAN HOLOVCHAK, JUSTIN OELGOETZ, CARRIE BRENNAN, ANDRIY KOVALSKIY, Austin Peay State University — Fluorescence, Raman and EXAFS spectroscopy were used to study glasses of Sn-F-P-O composition doped with different amounts of erbium. Increasing intensity of fluorescence with Er concentration in the range 390-600 nm is observed for 340 nm excitation. Raman spectroscopy measurements show that  $\text{Er}_2\text{O}_3$  modifies the glass spectrum with P-F bonds being replaced by Er principally bonding with F.  $\text{ErF}_3$  and  $\text{SnF}_2$  bands are also identified in the Raman spectra of the doped glasses. EXAFS data give a coordination of Sn to O of 1.5 in an undoped sample, while Er coordination is determined to be 9, indicating that  $\text{ErF}_3$  is the most likely environment for the rare-earth atoms. Glass transition temperature  $T_g$  of  $80^\circ\text{C}$  is determined for undoped glass increasing to  $87^\circ\text{C}$  for the samples doped with 0.25 mol. % of Er.

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