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Structure of Tin-Fluorophosphate Glasses for Solar Energy Applications TRAVIS TANNER, JUSTIN OELGOETZ, ROMAN GOLOVCHAK, CARRIE BRENNAN, ANDRIY KOVALSKYY, Austin Peay State University — One way to improve the effective efficiency of photovoltaics is to make more of the solar spectrum available for energy conversion. On way of accomplishing this is to up or down convert photons outside the most useful energy range into the more useful range. To this end, investigation on both undoped and Er- doped tin-fluorophosphate glasses ($50SnF_2$-20SnO-$30P_2O_5$) has begun. Raman Spectroscopy and high-resolution X-ray Photoelectron Spectroscopy (XPS) methods were utilized to characterize the undoped and doped samples. Analysis of Raman spectra at different excitation energies (488 nm, 532 nm, 785 nm and 1064 nm) did not reveal major effects associated with doping but noticeable changes between the structure of bulk and surface layers of the glass were found. A model of the glass structure based on these results will be presented.

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