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**Ag-Pb Interaction and Enhanced Fluorescence Emission of Pb<sup>2+</sup> in Lead Borate Glasses** SAISUDHA MALLUR, PRAKASH GIRI, MAHENDRA DC, P.K. BABU, Western Illinois University — We carried out Pb<sup>2+</sup> fluorescence measurements in lead borate glasses and studied the effect of adding Ag into the base glass. Lead borate glasses containing Ag (0 and 3 mol%) were prepared by the usual melt quench method. The prepared glasses were then annealed near the glass transition temperature (400 °C) at 5, 10, 20 and 30h. Fluorescence spectra of all these samples were obtained using different excitation wavelengths. In general, Pb<sup>2+</sup> monomers are expected to have emission at wavelength less than 400nm. However, no emission in this region was observed due to the base glass absorption. The emission observed at 450nm is attributed to <sup>3</sup>P<sub>1</sub> → <sup>1</sup>S<sub>0</sub> transition of Pb<sup>2+</sup> ions in dimer centers. Addition of Ag enhances the Pb<sup>2+</sup> luminescence intensity at 450 nm which also shows an increase with the annealing time. The possible mechanisms for the fluorescence enhancement in the present glass could be the energy transfer from isolated Ag particles and local field effects due to the difference between the dielectric functions of the glass matrix and the silver particles.

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