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Spectral and Kinetic Non-Equivalent Site Distribution of Ce^{3+} and Eu^{2+} Ions in Borosilicate Glasses

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Aluminoborosilicate glasses doped by cerium or europium ions were synthesized by high-temperature melting in air and investigated by means of luminescence spectroscopy. Dependence of Ce^{3+} and Eu^{2+} luminescence spectra on experimental conditions (emission or excitation wavelength, registration moment, and excitation regime) was observed. Luminescence decay curves revealed clearly non-exponential behavior and evolution with registration wavelength. The phenomena observed are supposed due to existence the set of distinguishable non-equivalent local cation sites in aluminoborosilicate glasses detected under different experimental conditions for glass properties analyzing.

Keywords: RE ions, luminescence, emission and excitation spectra, kinetic decay.