**Abstract**

Sodium borate and fluoroborate glasses doped with trivalent samarium (Sm3+) were prepared and their detailed spectroscopic analysis was carried out. The FTIR spectra reveal that, the glasses contain BO3, BO4, non-bridging oxygen and strong OH− bonds. From the optical absorption spectra, Judd–Ofelt intensity parameters (*Ωλ*, *λ*=2, 4 and 6) have been evaluated and are in turn used to predict radiative properties such as radiative transition probability (*A*), stimulated emission cross section (σPE) and branching ratios (*β*R) for the excited levels of Sm3+ ions in sodium borate and sodium fluoroborate glasses. The dependence of the spectral characteristics of Sm3+ ions due to compositional changes have been examined and reported. The value is found to decrease with the decrease in the sodium content in the glass. The decay from the 4G5/2 level is found to be non-exponential indicating a cross-relaxation among the Sm3+ ions.