THE INFLUENCE OF COLLOIDAL ROUTE PREPARATION ON STRUCTURE AND PROPERTIES OF RARE-EARTH DOPED NBS-GLASSES

A.V.Semchenko, A.A.Boiko*, V.A.Boiko*, E.N.Poddenezhny, I.M Melnicheko

Gomel State University, 104 Sovetskaya St., 246699 Gomel, Belarus

**Gomel Polytechnical Institute, 48 October av, 246746, Gomel, Belarus*

The colloidal method of obtaining of Na_2O-B_2O_3-SiO_2 (NBS) glasses doped with rare-earth ions has been developed and the results of investigations of obtained glasses doped with Ce- and Sm- ions (0,5-4 wt.%) are examined. The process of glass preparing included the followings steps: dissolving of boric acid into acetone and acetic acid mixture; preparation of colloid system by adding of fumed silica (aerosil) into the result solution; adding of natrium as $Na(NO_3)_3$ and the salts of rare-earth elements. The reactives have been degree purity 99.99%. The colloid was dried from room temperature up to 60^0C with the following heat treatment in the muffle furnace at the temperature 1280-1350^0C in 4-6 hour. The influence of molar ratio on particles dimensions and, as results, on materials properties has been investigated.