# Manganese modified structural and optical properties of zinc soda lime silica glasses

ABSTRACT

A series of MnO-doped zinc soda lime silica glass systems was prepared by a conventional melt and quenching technique. In this study, the x-ray diffraction analysis was applied to confirm the amorphous nature of the glasses. Fourier transform infrared spectroscopy shows the glass network consists of MnO4, SiO4, and ZnO4 units as basic structural units. The glass samples under field emission scanning electron microscopy observation demonstrated irregularity in shape and size with glassy phase-like structure. The optical absorption studies revealed that the optical bandgap ($E$opt) values decrease with an increase of MnO content. Through the results of various measurements, the doping of MnO in the glass matrix had effects on the performance of the glasses and significantly improved the properties of the glass sample as a potential host for phosphor material.

**Keyword:** Manganese modified structural; Optical properties; Zinc soda lime silica glasses