

# **Er–Pr doped tellurite glass nanocomposites for white light emitting diodes**

## **Abstract**

In this paper, optical glass nanocomposites (nanoparticles sizes up to 100 nm) with composition  $\text{TeO}_2\text{--WO}_3\text{--PbO--xEr}_2\text{O}_3\text{--yPr}_6\text{O}_{11}$  ( $x= 0.30$  mol%,  $y= 0.70$  mol%) embedded into polymer matrices was reported. The two types of polymers chosen for present study were: photopolymer oligoetheracrylate (OEA) and polymethylmethacrylate (PMMA), respectively. The incorporation of the titled nanoparticles into the polymer matrices is analyzed optically. The fluorescence spectra of the nanocomposites were compared with the fluorescence spectra of bulk glasses. Based on the comparison of  $\text{Er}^{3+}$  and  $\text{Pr}^{3+}$  ions' energy level schemes, possible energy transfer processes were identified. The prepared glasses are promising candidates for the white light emitting diodes applications