



From $\text{Sm}^{3+}:\text{La}_2\text{O}_3\text{-ZnO-Na}_2\text{O-TeO}_2$ glasses to transparent glass ceramics containing ZnTeO_3 and $\text{La}_2\text{Te}_4\text{O}_{11}$ nanocrystals : influence of the heat treatment on crystal growth and fluorescence properties.

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The paper presents the synthesis and spectroscopic properties of Sm^{3+} -doped transparent TeO_2 -based glass ceramics containing ZnTeO_3 and $\text{La}_2\text{Te}_4\text{O}_{11}$ nanocrystals. The impact of heat treatment is presented and discussed. X-ray diffraction and transmission electron microscope results demonstrate that nanocrystals are precipitated homogenously among the glass matrix. Excitation in the $^6\text{P}_{3/2}$ bands of Sm^{3+} produces a strong orange and red emission from the $^4\text{G}_{5/2}$ level. The results show noticeable differences between glass precursor, bulk and nanocrystalline $\text{Sm}^{3+}:\text{La}_2\text{Te}_4\text{O}_{11}$ in luminescence experimental data.

Słowa kluczowe

ceramics, Crystal growth, Nanocrystalline materials, luminescence, Optical materials and properties

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