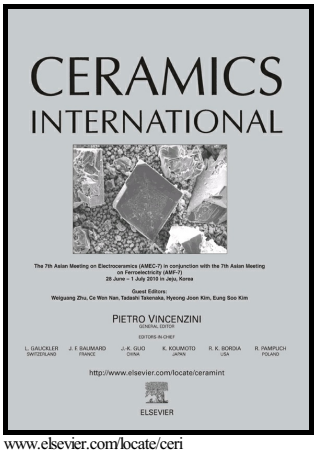

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Abstract

Rhabdophane-type Eu^{3+},Tb^{3+}-codoped $LaPO_4{\cdot}nH_2O$ single-crystal nanorods with the compositions $La_{0.99999-x}Eu_xTb_{0.00001}PO_4{\cdot}nH_2O$ (x=0– 0.03), $La_{0.99999-y}Tb_yEu_{0.00001}PO_4{\cdot}n'H_2O$ (y=0– 0.010), and $La_{0.99999-z}Tb_zEu_{0.000007}PO_4{\cdot}n''H_2O$ (z=0– 0.012) were hydrothermally synthesized with microwaves. It is shown that the Eu^{3+},Tb^{3+} codoping does not affect the thermal stability of these nanorods, which is due to the formation of substitutional solid solutions with both Eu^{3+} and Tb^{3+} replacing La^{3+} in the crystal lattice. Moreover, it is also shown that monazite-type Eu^{3+},Tb^{3+}-codoped $LaPO_4$ single-crystal nanorods can be obtained by calcining their