

New synthesis procedure for nanoparticulate Lu₂O₃:Eu and spectroscopy of the product.

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Streszczenie

Fabrication procedure of nanocrystalline Lu₂O₃:Eu powders from organic–inorganic emulsion is presented and the behavior of the precipitate upon heat-treatment is analyzed. It is proved that heating at 800–850 °C converts the raw material into Lu₂O₂SO₄:Eu, which decomposes further to Lu₂O₃:Eu when heated at 1000 °C or above. Research with synchrotron radiation revealed that free exciton is able to transfer effectively its energy to Eu³⁺ ions in Lu₂O₃:Eu nanosized powder, which is in contrast to the findings for micron-sized ceramics of the same composition.

Słowa kluczowe

Nanoparticles, Energy transfer, Luminescence, Free exciton

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