2017, pag. 11-17

Transfer of Light Energy from UV to Visible Domain in Coordination Compounds of Europium(III)

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Abstract

We propose a new technology for preparation of luminescent coordination organic compounds (COC) with Eu 3+ ions with down-conversion of light and extended absorption spectral response to UV. The optimal ionic and neutral ligands for coordination of rare-earth ions were selected for each specific organic compound Eu(TTA) 3 H 2 O, Eu(TTA) 3 Phen, Eu(TTA) 3 (Ph3PO) 2 NO 3 , Eu(TTA) 3 (Ph 3 PO) 2 , Eu(DBM) 3 Phen and Eu(o-MBA) 3 Phen. Selection of different COC was aimed at obtaining the compatibility with polymer and improving the efficiency of the luminescence through energy transfer. Characterization of Eu coordinating compounds was carried out by UV-Vis absorption and PL spectroscopy. The mechanism of energy transfer to rare-earth ions has been discussed.

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2017, pag. 11-17

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