Luminescence of $CaGd_{2(1-x)}Eu_{2x}(WO_4)_4$ scheelites

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Scheelites are ABO_4 compounds (A = alkali, alkaline-earth or rare-earth element; B = Mo, W) with the most well-known scheelite being $CaWO_4$. In scheelite related compounds there is a partial substitution of the A and/or B cation and crystals can be aperiodic in 3-dimensional space. The advantage of this so-called incommensurate modulation is that varying the composition results in various order patterns which yield a wide range of materials with often good optical properties, good stability and a relatively simple preparation method [1]. Since the order directly affects the position of the luminescence centers, and thus the efficiency of the phosphor, there could be a relation between this order and the optical properties. Here, the main focus will be on the optical properties of $CaGd_{2(1-x)}Eu_{2x}(WO_4)_4$. The temperature-dependent luminescence and decay pathways of the materials are investigated over a wide concentration range. In this way the potential of the materials as LED-phosphors or even as thermometric phosphors are evaluated.

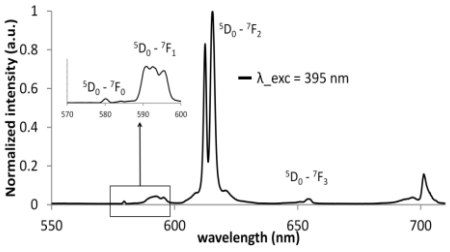

Figure 1 Emissionspectrum of $CaGdEu(WO_4)_4$

[1] C. Guo, H.K. Yang, and J.-H. Jeong, *Preparation and luminescent properties of the phosphor $MGd_2(MoO_4)_4$:Eu^{3+}*. Journal of Luminescence, 2010. **130**: p. 1390-1393.

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