

新型无机/有机复合发光材料Eu(aspirin)3phen-MCM-41的光学性能

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**摘要** 在室温下, 将MCM-41和热处理后的发光客体Eu(aspirin)3phen进行组装, 通过XRD、N<sub>2</sub>吸脱附和PL等表征技术对组装体进行了研究, 考察其光致发光性能。结果表明: Eu(aspirin)3phen进入MCM-41孔道后, 充当了“二次模板剂”, 使MCM-41的骨架有序性增加。经热处理后Eu(aspirin)3phen与MCM-41组装后, 组装体的发光强度与相应Eu(aspirin)3phen粉末相当。未焙烧的MCM-41表面和稀土有机配合物成键后, Eu(aspirin)3phen分子出现反演中心, 5D<sub>0</sub>→7F<sub>2</sub>跃迁明显减弱, 而焙烧后MCM-41表面对Eu<sup>3+</sup>的5D<sub>0</sub>→7F<sub>2</sub>电偶极跃迁强度没有影响。

**关键词** [复合材料](#), [MCM-41](#), [Eu\(aspirin\)3phen](#), [性能](#), [光致发光](#)

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Photoluminescence properties of new organic/inorganic composite material Eu(aspirin)3phen-MCM-41

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**Abstract** Assembly system with MCM-41 as a host, and Eu(aspirin)3phen which had been heat treated as an active optical guest was synthesized at room temperature. The structure and photoluminescence properties of the samples were investigated by XRD, N<sub>2</sub> adsorption-desorption and PL. The results suggest that the framework order of MCM-41 increases after Eu(aspirin)3phen being incorporated into the channels of MCM-41. The luminescence intensity of Eu(aspirin)3phen-MCM-41, where Eu(aspirin)3phen has been heat treated, is equal to that of Eu(aspirin)3phen powder. The inversion center appears in the Eu(aspirin)3phen molecular, while the surface of MCM-41 (before calcining) has bonding with Eu(aspirin)3phen, and then the transition 5D<sub>0</sub>→7F<sub>2</sub> decreases obviously. The surface of MCM-41 (after calcining) has no effect on the electric dipole transition 5D<sub>0</sub>→7F<sub>2</sub> of Eu<sup>3+</sup>.

**Key words** [composite material](#) [MCM-41](#) [Eu\(aspirin\)3phen](#) [properties](#) [photoluminescence](#)

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