化学学报 2003 61 (12): 1921-1925 ISSN: 0567-7351 CN: 31-1320/06

纳米**SiO_2**颗粒表面修饰的有机分子在介质中的光物理行为研究

王辉,张晓宏,吴世康

中国科学院理化技术研究所

收稿日期 修回日期 网络版发布日期 接受日期

摘要 利用Sol-Gel方法投篮了单分散性很好的球型二氧化硅纳米颗粒，通过表面化学修饰法引入了带有荧光发色团的有机分子，通过稳态光物理方法研究了纳米颗粒 表面的有机分子在水、乙醇以及阴、阳离子表面活性剂悬浮液中的光物理行为。实 验表明，纳米颗粒表面有机分子的分散状态是决定其光物理行为的主要因素。这一 结果为设计和开发新型“壳-核”型纳米二氧化硅荧光传感器提供了有用的参考。

关键词 溶胶-凝胶法 二氧化硅 传感器 化学修饰

分类号 0644

A Study on Photophysical Behavior of Silica Gel Nano-Particles Modified by Organic Molecule in Different Mediums

Wang Hui,Zhang Xiaohong,Wu Shikang

Technical Institute of Physics and Chemistry, Chinese Academy of Sciences

Abstract A spherical mono-dispersed silica nano-particle system has been prepared by sol-gel method. After surface modification fluorescent organic chromophore was introduced onto the particle surface. The steady state photophysical behavior of this system in different mediums has been studied carefully. The results indicated that the structural characteristics of organic chain attached and the dispersed situation of organic chromophore on surface both were the main factors for the photophysical behavior of suspension studied. These results will be important and beneficial for the design or development of this system used as a fluorescence chemical sensor.

Key words SOL-GEL PROCESS SILICON DIOXIDE SENSORS CHEMICLAL MODIFICATION

DOI:

通讯作者