

研究论文

仿生支撑液膜法制备硫化锌自组装纳米球链

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摘要 采用了一种全新的化学仿生方法——载体支撑液膜法制备ZnS纳米球链. 常温常压条件下, 利用含邻菲罗啉载体的支撑液膜(SLM)反应体系选择性传输Zn²⁺至膜另一侧, 在SLM模板作用下, 控制结晶位点, 定向结合阴离子, 加上局部过饱和及界面成核的影响, 成功制备出由8~30 nm纳米粒子自组装的直径范围为250~300 nm ZnS球链. 由XRD和TEM的结果显示, 其结构为立方闪锌矿, 晶格常数为 $a=0.5390$ nm.

本文还对其荧光性质及产物形成机理进行了初步探讨.

关键词 [支撑液膜](#) [仿生](#) [ZnS](#) [纳米球](#) [链状](#)

分类号

Biomimetic Self-assembly Synthesis of ZnS Chain-like Nanospheres with Supported Liquid Membrane

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Abstract A novel synthesis method of ZnS chain-like nanospheres by supported liquid membrane system has been investigated. The system, with *o*-phenanthroline as a mobile carrier, can selectively transport zinc ions to the other side of the membrane. Nucleation process was under the control of SLM template effect by directionally combining anion, local super saturation solution and the interfacial microenvironment. XRD and TEM data indicated that the crystal has cubic structure of blende with cell constant of $a=0.5390$ nm in the range of 250~300 nm. In addition, the morphological formation mechanism and luminescence properties of ZnS have been discussed.

Key words [supported liquid membrane](#) [biomimetic](#) [zinc sulfide](#) [nano-sphere](#) [chain-like](#)

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