

FULL PAPERS

共聚物核-银壳复合微球的制备及其结构表征

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**摘要** 在银氨溶液中利用原位还原的方法制备出共聚物(PS/PMAA)-银核壳微球。共聚物核平均粒径约为260nm, Ag壳层厚度可通过缓慢滴加不同浓度的银氨溶液控制在15-45 nm。利用TEM、TG、XRD、XPS等分析手段对样品的形貌、结构进行了表征。结果表明银氨溶液滴加速度及溶液浓度为控制复合微球形貌的关键因素。复合微球的形成机理可解释为: Ag纳米微晶首先在共聚物表面形成晶核, 随后Ag纳米粒子在晶核表面生长并形成不同厚度的Ag壳层。

**关键词** [核壳微球](#), [Ag, St-MAA共聚物](#)

分类号

### Synthesis and Characterization of Copolymer<sub>core</sub>-Silver<sub>shell</sub> Composite Microspheres

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**Abstract** Composite microspheres composed of monodispersed poly(St-co-MAA) latices with diameter about 260 nm as core and Ag nanocrystals as shell were prepared by an *in situ* reduction method. The shell thickness could be controlled in the range of 15—45 nm by this coating process. The structure and the composition of the core-shell microspheres were characterized by transmission electron microscopy (TEM), X-ray diffractometry (XRD), X-ray photoelectron spectroscopy (XPS), and thermogravimetric analysis (TG). The formation of the composite microspheres is explained by the nucleation of silver on the surface of the latices followed by growth of the silver shell.

**Key words** [core-shell microsphere](#), [silver](#), [poly\(St-co-MAA\)](#)

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