

研究论文

聚苯胺微管表面化学镀镍与电磁特性研究

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摘要 采用原位掺杂的方法合成了聚苯胺微管, 使用化学镀方法制备聚苯胺微管/Ni复合材料, 运用X射线粉末衍射(XRD)和能量色散光谱(EDS)研究了聚苯胺微管化学镀镍前后的微观结构; 利用UV-VIS吸收光谱研究了聚苯胺微管表面镀镍过程中SnCl<sub>2</sub>敏化、PdCl<sub>2</sub>

活化以及镀液温度对聚苯胺微管主链结构的影响; 采用波导法研究了聚苯胺微管化学镀镍前后在8.2~12.4 GHz频段内的电磁参数. 研究发现: 聚苯胺微管表面均匀地沉积了一层紧密Ni镀层, Ni介于晶态和非晶态之间, 并有少量Ni<sub>3</sub>P; SnCl<sub>2</sub>敏化、PdCl<sub>2</sub>活化过程对聚苯胺主链影响不大, 施镀温度对聚苯胺微管主链结构影响很大, 35 ℃时, 主链结构变化最小, 随着温度的增高, 聚苯胺还原程度变大.

关键词 [导电聚苯胺微管](#) [化学镀](#) [UV-VIS](#) [复合材料](#)

分类号

## Electroless Plating of Nickel on the Surface of Polyaniline Microtubules and Electromagnetic Property Study

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**Abstract** Polyaniline microtubules were prepared by using *in situ* doping method and polyaniline microtubule/Ni composites by electroless plating method. The sample before and after coating was checked via X-ray diffraction and energy dispersive spectrometry. The effect on polyaniline microtubule fundamental chain in the process of electroless nickel plating included catalysis by SnCl<sub>2</sub>, activation by PdCl<sub>2</sub> and temperature of electroless plating solution. The electromagnetic property was studied to find that Ni has been deposited on the surface of polyaniline microtubules orderly and tightly, the process of catalysis by SnCl<sub>2</sub> and activation by PdCl<sub>2</sub> have little effect, while temperature of electroless plating solution has large effect on polyaniline microtubule fundamental chain. The higher the temperature was, the more the polyaniline was reduced, and the bone chain was changed least at 35 ℃.

**Key words** [polyaniline microtubule](#) [electroless plating](#) [UV-Vis](#) [composite](#)

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