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FULL PAPERS

# 电沉积法制备金属纳米线阵列膜的偏光特性

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摘要 用电化学方法将Cu, Ag, Ni, Co及 Ag-Cu等金属和合金沉积到多孔氧化铝膜中，合成出金属纳米线阵列膜，并研究了其在400-2600 nm光波范围的光谱特性。结果表明：当光线以一定角入射时，金属纳米线阵列表现出良好的偏光特性。同时还发现，选择不同种类的金属或合金、控制纳米线的形状和长短、改变光入射的角度，均可对其偏光特性进行调节。

关键词 金属纳米线阵列,偏光性能,多孔氧化铝膜

分类号

## Optical Polarization Properties of Metal Nanowire Array Film Synthesized by Electrodeposition Technology

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**Abstract** Metal nanowire array films were prepared by electrodepositing Cu, Ag, Ni, Co and Cu-Ag on porous anodic alumina film. Optical transmittance of both the porous anodic alumina film and metal nanowire array film was measured in the wavelength range of 400—2600 nm under an obliquely incident light. The experimental results show that metal nanowire array films exhibit a prominent polarization function. It was found that optical polarization properties can be improved by choosing suitable kinds of electrodepositing metal, controlling the shape and length of nanowire, and changing the incident angle.

**Key words** metal nanowire array polarization property porous anodic alumina film

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