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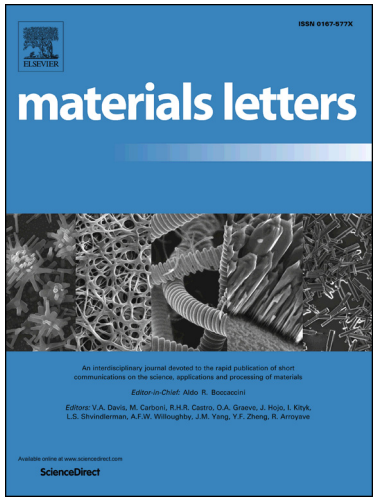

Gold nanoparticles decorated silver-nanowire films for transparent electrode with excellent thermal stability

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Gold nanoparticles decorated silver-nanowire films for transparent electrode with excellent thermal stability

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Abstract

Silver nanowires (AgNWs) were decorated with gold nanoparticles (AuNPs) using a facile spraying/dip-coating method so that the AgNW@AuNP film was fabricated as a promising alternative to conventional ITO film. The AgNW@AuNP film shows a network structure with AuNPs (<10 nm) decoration on the surface of AgNWs. This novel film exhibits excellent thermal stability (~350 °C) due to the suppressed atom migration on silver surface, and a low sheet resistance of 8.1Ω/□ with just an absorbance incensement less than 6% compared to bare AgNW film. The films have potential applications as transparent conductive materials for optoelectronic and photoelectrochemical devices in harsh environment.

Keywords

Silver nanowire; Thermal stability; Transparent electrode; Gold nanoparticle

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