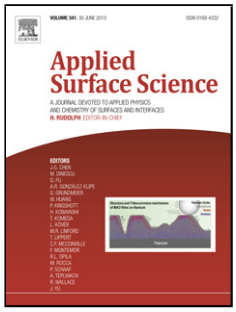

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Characteristics of copper meshes coated with carbon nanotubes via electrophoretic deposition

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Abstract

This study demonstrates the characteristics of a hybrid-type transparent electrode for touch screen panels, which was fabricated by coating carbon nanotubes (CNTs) via electrophoretic deposition (EPD) on copper (Cu)-meshes. The surface morphologies, visible-range transmittance and reflectance, and chromatic properties, such as yellowness and redness, of the fabricated CNTs-coated Cu mesh electrodes were characterized as functions of their dimensions (line-to-line spacing, line width, and electrode thickness) and compared with those of the Cu-mesh electrodes without coating of CNTs. The experimental results showed that the coating of CNTs substantially reduced the reflectance of the Cu-mesh electrodes and also improved their chromatic properties with their transmittance and sheet resistance only slightly changed, subsequently indicating that the CNTs-coated Cu-mesh electrodes possessed desirable characteristics for touch screen panels.

Keywords: Carbon nanotubes (CNTs), Copper-mesh, Electrophoretic deposition (EPD), Reflectance, Transmittance, Chromaticity.

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