OMICS Group Conferences
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International Conference and Expo on
Materials Science & Engineering

October 22-24, 2012   DoubleTree by Hilton Chicago-North Shore, USA

Metal electroplating applications on the non-electrically conducting substrate through few layer Graphene electrodes

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Few layer graphene was investigated as an interleaf layer giving electrical conductivity for metal electroplating and patterning on non-electrical conducted polymer substrates. The natural graphite was simply expanded by micro irradiation without multiple process. The preparation of few layer graphene was prepared with exfoliation of expanded graphite by sonication in specific solvent. The layer of few layer graphene was obtained by the vacuum assisted filtering method and transfer coated on a polymer substrate. The sheet resistance of the layer of few layer graphene on the polymer substrate was 0.9 kΩ/sq with the thickness (80 nm). When a metal, Ni, was electroplated on the layer of few layer graphene, metal seeds with a hemisphere shape appeared in the early stage of electroplating and subsequently grew up to 200 ~ 480 nm to form a continuous layer of metal. As a result, compared with the traditional electroplating methods, our developed electroplating method has no limitation for shape, and roughness of substrates.

Biography

Taeseon Hwang has completed his Ph.D from Sungkyunkwan University and postdoctoral studies from SKKU Advanced Institute of Nano technology (SAINT).

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