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GRAPHENE NANOPATELETS COATED GLASS FIBRE FABRICS AS STRAIN SENSORS

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Abstract

The incorporation of graphene nanoplatelets (GNPs) as a coating on glass fibre fabrics for strain monitoring applications was analysed. Non-functionalized and functionalized GNPs were used in order to study the effect of the functionalization in the morphology of the coating and the electrical behaviour of the material. In contrast with non-functionalized GNPs, when NH₂-functionalized GNPs were used, the nanoparticles adapted to the surface of the fibres causing a major effectiveness of the electrical network created along the fibres, achieving an electrical conductivity in the order of 10⁻² S/m. The sensitivity values, obtained under tensile loads, reached values in the order of 840 up to 16400.

Keywords: A. Glass fibres, A. Nano particles, A. Functional composites, B. Electrical properties, Strain sensors.

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