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Layer-by-Layer Grafting CNTs onto Carbon Fibers Surface for Enhancing the Interfacial Properties of Epoxy Resin Composites

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ABSTRACT: An effective method for bonding carbon nanotubes (CNTs) onto carbon fibers (CFs) surface via layer-by-layer (LBL) grafting method is reported here. The CNTs have been chemically grafted as confirmed by X-ray photoelectron spectroscopy (XPS). Scanning electron microscopy (SEM) indicates that this LBL method can increase the dispersion quality of the CNTs on CF surface. The polarity, wettability and roughness of the CFs have been significantly increased after the CNTs modifying. The interfacial shear strength (IFSS) and impact strength test suggest that the hierarchical structure can result in a remarkable improvement for the interfacial properties. The results also indicate that this LBL method is a