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Highly dispersed graphene oxide electrodeposited carbon fiber
 reinforced cement-based materials with enhanced mechanical
 properties

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Abstract

17 Mechanical behavior of carbon fiber (CF) reinforced cement-based materials greatly depends on the dispersion of CF and interfacial properties between the CF and cement 18 19 matrix. In this study, graphene oxide (GO) was utilized to modify the surface 20 properties of CF, including the roughness, wettability and chemical reactivity, and the 21 graphene oxide/carbon fiber (GO/CF) hybrid fibers were fabricated by a newly 22 designed electrophoretic depositing method. The scanning electron microscopy and 23 contact angle measurement results indicated that GO/CF hybrid fibers not only had a 24 rougher surface which was expected to improve the physical friction when CF was 25 pulled out from cement matrix, but also had a higher wettability surface that made it 26 easier to contact with cement hydrates as nucleation sites. In addition, GO/CF hybrid fibers were capable of high chemical reactivity due to the introduction of GO with 27

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