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**Tailoring Viscoelastic Response, Self-heating and Deicing Properties of Carbon-Fibre
Reinforced Epoxy Composites by Graphene Modification**

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ABSTRACT

Vacuum infusion process was employed for the fabrication of carbon fiber reinforced polymeric composites modified by graphene. Three different methods were utilized for the incorporation of graphene into the CFRP composites. In the first and second approaches, graphene were respectively electrosprayed on the surface of carbon fibers as interface modifiers and dispersed into the epoxy resin to improve the matrix properties. The third method includes the concurrent usage of both treatments just mentioned above. The viscoelastic behavior of composites was examined by dynamical mechanical testing at different temperatures, frequencies and graphene integration configurations. In addition, the effect of graphene on the electrical conductivity, thermal diffusivity and electro-thermal performance of composites was also studied in detail. The results indicated that the FRP composites gain multi-

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