Nanocarbon modified epoxy resin and microwaves

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The study is focused on electromagnetic (EM) response properties of Modified Bisphenol A Epoxy Resin, widely used in aerospace applications, as paint and structural glue, enriched with a low concentration of laboratory-made arc-discharge carbon nanotubes (CNT) and commercially available CVD-made single-walled and multi-walled carbon nanotubes. The EM attenuation and reflection in X-band (8–12 GHz), Ka-band (26–37 GHz) and W-band (78–118 GHz) provided by fabricated samples were measured as a function of the functional filler content (0.25-1.5 wt.%). The constitutive parameters of nanocarbon based composites in microwave frequencies has been theoretically modeled by means of nanoelectromagnetics and reconstructed from the experimental data. The EM effectiveness has been found to be strongly dependent on the nanocarbon percentage, type and synthesis conditions.

The work was partially supported by the ISTC project B-1708, the EU FP7 project FP7-266529 BY-NanoERA and the Italian Ministry PRIN 2008 research program Development and Electromagnetic Characterization of Nano Structured Carbon Based Polymer CompositEs (DENSE).