

Tunable electromagnetic response of free-standing 3D carbon nanotube network in the Ka-band

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Abstract:

The sponges made of multi-walled carbon nanotubes (CNT) demonstrate tunable electromagnetic response properties in the microwave range (27-36 GHz) governed by their mechanical deformation. The higher the applied stress, the denser the sponge, the more reflective it is in the Ka-band. The microwave effective conductivity of the CNT network macrostructure was proved to be linearly increased with its density.

Keywords:

carbon nanotube, network, Ka-band, conductivity