

Ferrocene-based conductive polymer/carbon material composites for electromagnetic interference shielding

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Abstract

With the development of modern technologies such as telecommunication instruments and scientific electronic devices, a large amount of electromagnetic (EM) radiations are produced, which lead to harmful effects on the highly sensitive electronic devices and the surrounding environment. At present, the shielding materials are widely used to solve this problem and minimize the effect of EM radiation. In this scenario, polymer-based composites containing conductive fillers such as carbon black (CB), carbon nanotubes (CNTs) and graphene have gained enormous attention as EMI shielding materials due to their unique properties such as excellent connectivity in the composite materials as a conductive filler, good electrical, thermal and EMI shielding properties. These composites have promising applications in the EMI shielding field especially in the areas of electronics, aerospace, aircraft, wearable devices, automobiles and so on. The ferrocene-based conductive polymer composites containing conductive fillers are useful for EMI shielding effectiveness (EMI SE) because conductive polymers have the ability to transfer electron on the conductive fillers and ferrocene group has good redox properties. Therefore, ferrocene-based conductive polymers may promote conductive properties of the composites which are essential for EMI shielding performance. In our research, we prepared different ferrocene-based conductive polymer/carbon material composites containing multiwalled carbon nanotube (MWCNT), reduced graphene oxide (RGO) and CB respectively and their EMI shielding properties and mechanism were studied.

Biography

Ahsan Nazir has completed his PhD at the age of 29 years from Zhejiang University, China. He is the Post Doc researcher of Shanghai Jiao Tong University, China. He has over 19 publications that have been cited over 50 times.



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