Graphene in patch antenna application

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Microstrip antenna (or patch antenna) is the dielectric layer between the conductive line and the ground conductor. Nowadays the microstrip antenna is more and more important owing to its low cost, low profile, and easy fabrication. Graphene, a novel carbon material, has a low resistivity, exhibiting an opportunity to substitute for some metals such as copper and silver in microstrip antenna applications.

The synthesized graphene was transferred onto a glass substrate to measure the related antenna characteristics. Figure 1(a) shows the frequency response of the measured reflection coefficient ($S_{11}$). The reflection coefficient of graphene antenna was less than -10 dB at about 6.5 GHz. The radiation efficiency for the graphene patch antenna is shown in Fig. 1(b). These results show that the graphene has the potential for antenna applications.

![Graphene in patch antenna application](image)

Figure 1. (a) frequency response of the measured reflection coefficient $|S_{11}|$ and (b) frequency response of the radiation efficiency for the graphene patch antennas.