Tunable terahertz broadband absorber based on a composite structure of graphene multilayer and silicon strip array

We propose a terahertz broadband absorber composed by silicon strips with continuous graphene on top of a metal mirror. The simulation results show that under the combined effect of the Fabry–Perot resonance and the dipole mode oscillation excited in the silicon strip array interacting with graphene, this structure can achieve an ultra-wide absorption band from 0.73 to 1.95 THz with absorbance of 90%. By changing the size of the silicon strips or the Fermi level of graphene, the working band of the absorber can be tuned.