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标题: Terahertz emission by diffusion of carriers and metal-mask dipole inhibition of radiation

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摘要: Terahertz (THz) radiation can be generated by ultrafast photo-excitation of carriers in a semiconductor partly masked by a gold surface. A simulation of the effect taking into account the diffusion of carriers and the electric field shows that the total net current is approximately zero and cannot account for the THz radiation. Finite element modelling and analytic calculations indicate that the THz emission arises because the metal inhibits the radiation from part of the dipole population, thus creating an asymmetry and therefore a net current. Experimental investigations confirm the simulations and show that metal-mask dipole inhibition can be used to create THz emitters. (C) 2012 Optical Society of America

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