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Abstract:A quantum dot (QD) sensing device, fabricated from nanoscaled carbon material has been studied using of a bilayer graphene field effect transistor in order to enable its application to the detection of microwave (GHz) and/or terahertz (THz) radiation. Recently, it has been found that there exist several common features in low temperature quantum transport, found in experimental results of conductance quantization in a semiconductor QDs and the magnetoresistance of a graphene QDs. The applicability of a graphene field effect transistor at the GHz/THz range is discussed in terms of the microwave transconductance characteristics up to 40 GHz.
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