95
标题: Terahertz sensing application by using planar split-ring-resonator structures
作者: Sabah, C (Sabah, C.); Roskos, HG (Roskos, H. G.)
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摘要: This numerical study investigates terahertz sensing applications of metamaterials based on planar split-ring-resonators. In order to keep the manufacturing process of the sensor simple, arrays of single split-ring-resonators are used. Two types of resonators, square and circular, are designed to cover different frequency ranges. An unknown material is then added as an overlayer to the metamaterial in order to explore the performance of the entire system in terms of sensing phenomenon. The changes in the transmission resonances are monitored upon variation of the thickness, the dielectric constant, and the coverage (distribution of the unknown material within each unit cell) of the overlayer. The results show good sensitivity of the sensors suggesting they can be used for a myriad of terahertz sensing applications in biology and chemistry.
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地址: [Sabah, C.; Roskos, H. G.] Goethe Univ Frankfurt, Inst Phys, D-60438 Frankfurt, Germany
通讯作者地址: Sabah, C (通讯作者),Goethe Univ Frankfurt, Inst Phys, Max von Laue Str 1, D-60438 Frankfurt, Germany.
电子邮件地址: Sabah@Physik.uni-frankfurt.de
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