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标题: Ultrafast insulator-metal phase transition in vanadium dioxide studied using optical pump-terahertz probe spectroscopy
作者: Liu, HW (Liu, H. W.); Wong, LM (Wong, L. M.); Wang, SJ (Wang, S. J.); Tang, SH (Tang, S. H.); Zhang, XH (Zhang, X. H.)
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摘要: We studied the ultrafast dynamic behavior of the photoinduced insulator-metal phase transition in VO2 thin film using optical pump-terahertz probe spectroscopy with different excitation fluences and at different temperatures. We observed two processes in the insulator-metal phase transition in VO2: a fast process and a slow process. The fast process is a nonthermal process, which is ascribed to the nucleation of the metal phase, while the slow process is strongly affected by temperature and is ascribed to the thermally driven growth and coalescence of metal domains in VO2. The transient complex conductivity spectra at different delay times are also investigated.
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地址: [Liu, H. W.; Tang, S. H.] Natl Univ Singapore, Dept Phys, Singapore 117542, Singapore
[Liu, H. W.; Wong, L. M.; Wang, S. J.; Zhang, X. H.] ASTAR, Inst Mat Res & Engn, Singapore 117602, Singapore
通讯作者地址: Liu, HW (通讯作者),Natl Univ Singapore, Dept Phys, 2 Sci Dr 3, Singapore 117542, Singapore.
电子邮件地址: phytsh@nus.edu.sg; xh-zhang@imre.a-star.edu.sg
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