514
Accession number:WOS:000307844200021
Title:Study on Phase Transition Property of Tungsten-doped Vanadium Dioxide Thin Film at Terahertz Range
Authors:Mao, M. (1); Huang, W.X. (1); Zhang, Y.X. (2); Yan, J.Z. (1); Luo, Y. (1); Shi, Q.W. (1); Cai, J.H. (1)
Author affiliation: (1) Sichuan Univ, Coll Mat Sci & Engn, Chengdu 610064, Peoples R China; (2) Univ Elect Sci & Technol China, Coll Phys Elect, Chengdu 610054, Peoples R China
Source title:JOURNAL OF INORGANIC MATERIALS
Abbreviated source title:J INORG MATER
Volume:27
Issue:8
Issue date:AUG 2012
Pages:891-896
Language:English
ISSN:1000-324X
Document type:Article
Publisher:SCIENCE PRESS, 16 DONGHUANGCHENGGEN NORTH ST, BEIJING 100717, PEOPLES R CHINA
Abstract:Vanadium dioxide and tungsten-doped (W-doped) vanadium dioxide thin films deposited by aqueous Sol-Gel method were characterized with several different techniques (i.e. X-ray photoelectron spectroscope, atomic force microscope, X-ray diffraction), to determine their morphology and microstructure. Their metal-to-insulator (MIT) phase transition behavior in infrared spectral region (lambda=4 mu m) and terahertz (THz) spectral region (0.3-1.0 THz) were observed respectivele. The results demonstrate that the transmittance of W-doped VO2 film at room temperature is visibly lower than that of undoped VO2 film in both infrared and terahertz spectral region. The transition temperature of W-doped VO2 film is also lower than that of undoped VO2 film in the THz range. The MIT and structural phase transition (SPT) are observed during the phase transition of VO2 and W-doped VO2, and an obvious change of peak position occurs in W-doped VO2 film.
Number of references:19
Main heading:Materials Science
DOI:10.3724/SP.J.1077.2012.12131