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Accession number:20114514504307

Title:Growth and terahertz characterization of Hg1-xCdxTe crystal

Authors:Wang, Reng (1); Lin, Xing-Cao (1); Zhang, Li-Ping (1); Zhang, Ke-Feng (1); Jiao, Cui-Ling (1); Lu, Ye (1); Shao, Xiu-Hua (1); Li, Xiang-Yang (1); Ge, Jin (2); Hu, Shu-Hong (2); Dai, Ning (2)

Author affiliation:(1) Key Laboratory of Infrared Imaging Materials and Detectors, Shanghai Institute of Technical Physics, Chinese Academy of Sciences, Shanghai 200083, China; (2) National Laboratory for Infrared Physics, Shanghai Institute of Technical Physics, Chinese Academy of Sciences, Shanghai 200083, China

Corresponding author: Wang, R.(tiaoqi1980@163.com)

Source title:Hongwai Yu Haomibo Xuebao/Journal of Infrared and Millimeter Waves

Abbreviated source title:Hongwai Yu Haomibo Xuebao

Volume:30

Issue:5

Issue date:October 2011

Publication year:2011

Pages:401-405+462

Language:Chinese

ISSN:10019014

CODEN:HHXUEZ

Document type:Journal article (JA)

Publisher: Chinese Optical Society, 420 Zhong Shan Bei Yi Road, Shanghai, 200083, China

Abstract:Different composition Hg1-xCdxTe crystals were grown by THM method. The optical properties of Hg1-xCdxTe crystals were investigated by using the Fourier transform infrared spectroscopy and transmission mode THz time-domain spectroscopy. The transmission was approached to zero in 0.2~1.5 THz frequency range as Cd composition of Hg1-xCdxTe crystal was lower than 0.279. A TA phonon model of Hg1-xCdxTe crystal was observed at 0.9 THz. Drude model was applied for simulation, which fitted well with the experimental results. The carrier densities of the Hg1-xCdxTe (x=0.388 and 0.326) were also characterized, which agreed with the experimental results.

Number of references:13