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Title

Growth and terahertz characterization of Hg(1-x) Cd(x) Te crystal

Source

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Abstract

Different composition Hg(1-x)Cd(x)Te crystals were grown by THM method. The optical properties of Hg(1-x)Cd(x)Te 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 similar to 1.5 THz frequency range as Cd composition of Hg(1-x)Cd(x)Te crystal was lower than 0.279. A TA phonon model of Hg(1-x)Cd(x)Te 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 Hg(1-x)Cd(x)Te (x = 0.388 and 0.326) were also characterized, which agreed with the experimental results.