

[physica status solidi \(c\)](#)

[Volume 1, Issue 11](#), Pages 2733 - 2736

Special Issue: The 11th International Conference on Phonon Scattering in Condensed Matter (Phonons2004).

Published Online: 16 Nov 2004

Copyright © 2004 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim

Abstract | [References](#) | Full Text: [PDF](#) (508k) | [Related Articles](#) | [Citation Tracking](#)

Phononic crystals and superlattices

IR reflection of optical phonons in GaN/AlGa_N superlattices

Alexander G. Milekhin^{1*}, Mikhail Yu. Ladanov¹, Wsevolod V. Lundin², Andrei I. Besulkin², Alexander N. Smirnov², Valery Yu. Davydov², Cameliu Himcinschi³, Marion Friedrich³, Dietrich R.T. Zahn³

¹Institute of Semiconductor Physics, Lavrentiev Av. 13, 630090 Novosibirsk, Russia

²Ioffe Physico-Technical Institute, Politechnicheskaya, 26, 194021 St. Petersburg, Russia

³Institut für Physik, Technische Universität Chemnitz, 09107 Chemnitz, Germany

email: Alexander G. Milekhin (milekhin@thermo.isp.nsc.ru)

*Correspondence to Alexander G. Milekhin, Phone: +7 383 2 34 35 91, Fax: +7 383 2 33 27 71

Keywords

63.22.+m • 78.30.Fs • 78.67.Hc

Abstract

We present the IR study of vibrational properties of GaN/Al_{0.28}Ga_{0.72}N superlattices with different thickness of superlattice layers. IR reflection spectra of the superlattices were taken at normal and off-normal incidence using p-polarised light in order to analyze optical phonons propagating both along and perpendicular to the layer surface. Optical phonon frequencies as well as thickness of the structure layers were determined from a comparison of the experimental IR reflection spectra to those calculated in the framework of the dielectric continuum model. (© 2004 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim)

Received: 13 July 2004; Accepted: 6 September 2004

Digital Object Identifier (DOI)

10.1002/pssc.200405306 [About DOI](#)