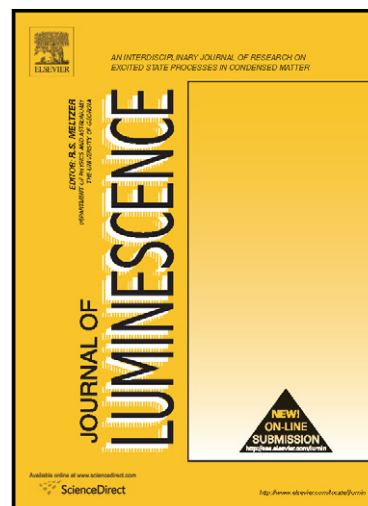


Author's Accepted Manuscript

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G. Rezaei, M.J. Karimi, H. Pakarzadeh



PII: S0022-2313(13)00320-7
DOI: <http://dx.doi.org/10.1016/j.jlumin.2013.05.039>
Reference: LUMIN11931

To appear in: *Journal of Luminescence*

Received date: 22 February 2013
Revised date: 9 May 2013
Accepted date: 30 May 2013

Cite this article as: G. Rezaei, M.J. Karimi, H. Pakarzadeh, Magnetic field effects on the electron Raman scattering in coaxial cylindrical quantum well wires, *Journal of Luminescence*, <http://dx.doi.org/10.1016/j.jlumin.2013.05.039>

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Magnetic field effects on the electron Raman scattering in coaxial cylindrical quantum well wires

G. Rezaei^{a1 2}, M. J. Karimi^b, and H. Pakarzadeh^b

^a*Department of Physics, College of Sciences, Yasouj University, Yasouj, 75914-353, Iran*

^b*Department of Physics, College of Sciences, Shiraz University of Technology, Shiraz, 71555-313, Iran.*

Abstract

Based on the effective mass and parabolic one band approximations, the influence of an external magnetic field on the differential cross-section for the intersubband electron Raman scattering process in coaxial cylindrical quantum well wires is investigated. The dependence of differential cross-section on magnetic field strength and structural parameters of the coaxial cylindrical quantum well wire is studied. It is found that the magnetic field strength and the geometrical size of the system have a great influence on the position of the singularities in the emission spectra. Moreover, one can control the frequency shift in the Raman spectrum by varying the magnetic field strength and the size of the coaxial cylindrical quantum well wire.

Keywords: Electron Raman scattering; Differential cross-section; Coaxial

¹Corresponding author. Phone: +98 741 222 3048, Fax: +98 741 222 3048.

²E-Mail: grezaei@yu.ac.ir.

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