NIKA, Denis, POKATILOV, E.P., ZINCENKO, N.D. Engineering of Thermal Fluxes in Phonon Mismatched Heterostructures. In: Journal of Nanoelectronics and Optoelectronics. 2009, Vol..4, nr.1, pp. 180-185. ISSN 1555-130X.

The authors investigated theoretically the lattice thermal fluxes in planar three-layered heterostructures with inner silicon or germanium layer using the face-centered cubic cell dynamic lattice model. It has been established that the acoustically mismatched claddings significantly influence on the phonon spectra and thermal flux of heterostructures. The claddings with small sound velocity reduce average phonon velocity and decrease thermal flux in the nanostructure. The claddings with high sound velocity have an opposite effect. The predicted effects can be used for the engineering of the thermal properties of acoustically mismatched heterostructures and for the improving of the thermal management and thermoelectric properties of nanodevices.