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**Low Frequency Thermal Conductivity in Micro Phononic Crystals**<sup>1</sup> VIRGILIO ANJOS, ALISON ARANTES, Univ Federal de Juiz de Fora — We study theoretically the cumulative thermal conductivity of a micro phononic crystal at low temperature regime. The phononic crystal considered presents carbon microtubes inclusions arranged periodically in a two-dimensional square lattice embedded in soft elastic matrix. Moderate and high impedance mismatch are considered concerning the material composition. The low frequency phonon spectra (up to tens of GHz) are obtained solving the generalized wave equation for inhomogeneous media within the Plane Wave Expansion method. We consider low temperatures in order to increase the participation of GHz thermal phonons. We observed suppression in the cumulative thermal conductivity at the band gap region and thus a reduction of thermal conductivity of the phononic crystal when compared with the bulk matrix.

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