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Phonons and Heat Capacity of Biodegradable Poly(lactic Acid)¹ R. STAGRACZYNSKI, Department of Mathematics and Applied Physics, The University of Technology, Rzeszow, 35959 Rzeszow, Poland , M. PYDA, Department of Chemistry, The University of Technology, Rzeszow, 35959 Rzeszow, Poland. — Phonon dispersion curves and density-of-states of biodegradable poly(lactic acid) PLA have been calculated based on an infinite chain using force field and the normal modes frequencies. The heat capacity was obtained from the dispersion curves via density-of-states. Results are compared to the heat capacity obtained using ATHAS-scheme where the vibrational heat capacity is separated into group and skeletal vibrations. The group vibrational heat capacity is approximated based on infra read and Raman spectroscopy. The calculated heat capacity C_p was compared with the experimental C_p of biodegradable polymer PLA.

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