

Laser optoacoustic method of evaluation of porosity influence on local elastic moduli of isotropic composite materials

Diploma thesis abstract

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In the present work laser optoacoustic method of evaluation of porosity influence on local elastic moduli of isotropic composite materials is proposed and experimentally realized. Local values of elastic moduli and porosity were calculated from the values of longitudinal and shear wave velocities of thermo-optically generated pulses. The measured results of local porosity compare with the results of weighting in the air. The method is realized with a number of isotropic composite material samples made from aluminum matrix, titanium microparticles and synthetic diamond nanoparticles. Received evaluation of porosity influence at local elastic moduli could be the basis for improved composite material technologies.