

Study on Carbon Nanostructures Influence on Changes in Static Friction Forces

Authors : Rafał Urbaniak, Robert Klosowiak, Michał Ciałkowski, Jarosław Bartoszewicz

Abstract : The Chair of Thermal Engineering at Poznan University of Technology has been conducted research works on the possibilities of using carbon nanostructures in energy and mechanics applications for a couple of years. Those studies have provided results in a form of co-operation with foreign research centres, numerous publications and patent applications. Authors of this paper have studied the influence of multi-walled carbon nanostructures on changes in static friction arising when steel surfaces were moved. Tests were made using the original test stand consisting of automatically controlled inclined plane driven by precise stepper motors. Computer program created in the LabView environment was responsible for monitoring of the stand operation, accuracy of measurements and archiving the obtained results. Such a solution enabled to obtain high accuracy and repeatability of all conducted experiments. Tests and analysis of the obtained results allowed us to determine how additional layers of carbon nanostructures influenced on changes of static friction coefficients. At the same time, we analyzed the potential possibilities of applying nanostructures under consideration in mechanics.

Keywords : carbon nanotubes, static friction, dynamic friction

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