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Influence of Doping by Oxygen Atoms of Porous Carbon Nanostructures on Values of Young's Modulus

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Porous carbon structures are actively used in various fields of science and technology. The mechanical strength of porous carbon structures with a density of 1.4 g/cm^3 with different pore sizes and different concentrations of oxygen atoms was investigated. Investigation of the mechanical properties of porous carbon nanostructures was carried out on three models with different sizes of nanopores (0.4–0.8 nm, 0.2–1.12 nm, 0.7–1.3 nm). The nature of the change in Young's modulus of porous nanostructures is determined depending on the concentration and arrangement of oxygen atoms in nanopores.

Keywords: porous carbon structures, doping, Young's modulus, oxygen atoms, concentration.

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