Study of the aerodynamics of wind rotors with horizontal axis: design, manufacture, testing

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Abstract. **The paper is dedicated to the study of aerodynamic effects in small power wind turbine rotors using mathematical models to describe the fluid flow physics and modern methods of numerical simulation in the framework of computational fluid dynamics (CFD). There was argued the geometry of blades' aerodynamic profiles efficient in terms of energy conversion efficiency and based on them original concepts of aerodynamic rotors were developed. Based on the obtained research results, new models of wind turbines were developed and manufactured, including the wind turbine concept oriented to the direction of air currents with Windrose with aerodynamic profile of the blades.**
Keywords**: mathematical models, CFD numerical simulation, turbulent flow, aerodynamic rotor, wind turbine.**

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