

# EXPERIMENTAL RESEARCH OF THE UAV PROPELLER THRUST EFFICIENCY

**Darius Rudinskas**

**Giedrius Jočbalis**

**Aleksandr  
Lapušinskij**

Antanas Gustaitis Aviation Institute of Vilnius Gediminas Technical University, Lithuania

**Abstract:** The paper present investigates propeller thrust parameters, thrust dependence on the physical parameters of propeller for Unmanned Air Vehicles (UAVs). The aim is to select optimized propeller for a particular brushless motor, evaluate influence of the various parameters on the propeller thrust. The analytical part provides an overview of propellers, examples of application, methods and algorithms of design and analysis programs. The propeller's modelling process using "XRotor", "DFDC", "Catia" and "ANSYS" applications. The experimental part consists of various parameter simulations using "ANSYS CFD" finite volume method program.

The experimental part provides the results of physical tests using several different propellers and brushless motor combinations. Some conclusions concerning optimal trust and power efficiency for the best propeller and brushless motor combination were drawn as well.

**Keywords:** UAV, thrust, brushless motor, propeller, efficiency