

Distinctive features of the approach to determine aircraft aerodynamic characteristics in subsonic wind tunnels

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Abstract. Nowadays, a wind tunnel experiment is still the main approach to determine the aerodynamic characteristics of different objects, especially regarding such complex and expensive one as an advanced aircraft. The paper contains the detailed information about aerodynamic complex based on the Aerohydrodynamics Department of National Aerospace University “Kharkiv aviation institute”. The complex consists of supersonic and subsonic wind tunnels with close and open working sections that are involved in study process and scientific investigations. This equipment allows determining the characteristics of different aircraft as well as other kind of transport such as overland, marine and submarine ones in the wide range of velocities and altitudes. The process of wind tunnel experiment is described. The specifics of getting the aerodynamics characteristics of an aircraft that is flying on the big attack angles are considered. The comparison between results, which is obtained in the wind tunnels and those that is got by other different contemporary approaches such as theoretical analytical calculation and numerical simulation has been performed. The given speech may be interesting to aviation engineers or to those specialists who are involved in design of an aeronautical equipment.

Tetiana M. SOLIANYK completed her PhD at the age of 29 years at the National Aerospace University “Kharkiv Aviation Institute”, Kharkiv, Ukraine. She also obtained the title of assistant professor in 2019 and got FCE B2 level certificate in English. She was Vice-dean of the Aircraft Control Systems Faculty, Head of the Pre-university Learning Department.

Now she works as the Associate Professor of Aerohydrodynamics Department of Aircraft Design faculty. She is one of the Communicate Manager between Aerohydrodynamics department and foreign delegations from different universities and countries. She has published approximate 30 papers in reputed journals, 20 conference abstracts, coauthor of 4 scientific and methodological manuals in Ukraine. She participated in 3 State research projects in Ukraine. The main teaching subjects are Hydraulics; Hydraulic and pneumatic systems; Flight Dynamics. The main research direction is determination of aerodynamic characteristics of aircraft.