Call for Papers

WSEAS TRANSACTIONS on SYSTEMS and CONTROL

Active and Passive Flow Control Devices

Committee:
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Aim:
Due to large energy losses associated with boundary-layer separation, flow separation control has become a very important issue for several industrial applications in the field of fluid mechanics. The most important reason of flow-separation is the lack of momentum in the boundary layer, thus usually the primary option in trying to control the flow separation is the installation of vortex generators because they have the advantage of being cost-effective and simple to set-up and manufacture. Flow control devices can be used to increase both free-shear and wall-bounded flows by extending the effective area through which transport occurs, by setting off resonant flow instabilities, by advancing laminar to turbulent transition and by enhancing the turbulence once the shear flow is already turbulent, Gad-el-Hak [1]. The effective generation of secondary flows and/or recirculation areas is an additional tool with which to enhance mixing in both laminar and turbulent flows. Therefore, it is highly recommendable to implement efficient, reliable and cost-effective systems used to control the boundary layer detachment. Some of these systems provoke major modification in the circulation of the flow that leads to an important change in the value of the lift produced at every angle of attack. Consequently, a promising increase in the torque produced on the rotor of the wind turbine is expected to occur if these devices are properly assembled on the blades. The use of vortex generators is a successful example of this strategy, Fernandez-Gamiz et al. [2]. The proposed Special Issue aims to acquire a profound know-how on passive and active flow control systems. Some examples are: vortex generators and microtabs, though other geometries trailing edge flaps and devices like biomimetic type (based on structures developed in nature) are not excluded.

Topics:
Flow control
Vortex generators
Microtabs
Stall strips
Moving trailing edge flaps and slats
Gurney flaps
Synthetic jets
Serrated trailing edges
Wind turbine

Airfoil
Computational Mechanics
Fluid Dynamics
Aerodynamics

Submission Deadline: February 28, 2017

Submission Rules:
Manuscripts should be prepared according to the formatting instructions. Manuscripts submitted to the Special Issue on Biometrics, Computer Vision and Information Security are to be submitted following the standard submission process. All submitted manuscripts will be reviewed using the standard procedure that is followed for regular submissions.