



Flow Control Methods in Aerodynamics

Lecturer: dr hab. inż. Paweł Flaszyński (IMP PAN)

Topics:

1. Introduction to Turbulence (1h)
2. Fundamentals of Computational Fluid Dynamics – Turbulence modeling(1h)
3. Fundamentals of Flow Measurements Techniques (1h)
Particle Image Velocimetry, Laser Doppler Anemometry, Pressure Sensitive Paint, Temperature Sensitive Paint
4. Laminar-turbulent transition. Boundary layer separation – reasons and consequences (2h)
5. Shock wave boundary layer interaction (2h)
6. Flow control methods
 - 6a. Suction or blowing in boundary layer, electro-hydrodynamic actuators (cold plasma) (2h)
 - 6b. Streamwise vortex generators (vane/rod/jet vortex generators), synthetic jets (2h),
7. Turbomachinery challenges and flow control application. Transonic flow, unsteady effects of shock wave boundary layer interaction, boundary layer separation in turbomachinery (aircraft engine fan/compressor and turbine) (2h)
8. External aerodynamics – flow control application for wind turbine, helicopter rotor and aircraft wing – subsonic and transonic flow (2h)

Terminy wykładów			
Data	Dzień tyg.	Godzina	Sala
2015-11-23	Pn	9.15-12.00	WM 200
2015-11-24	Wt	9.15-12.00	WM 200
2015-11-25	Śr	9.15-12.00	WM 200
2015-11-26	Cz	9.15-12.00	WM 200
2015-11-27	Pt	9.15-12.00	WM 200