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P o z i v

Pozivamo Vas na predavanje

CURRENT ACTIVITIES IN NUMERICAL UNSTEADY AERODYNAMICS FOR FLUTTER- AND LOADS ANALYSIS OF TRANSPORT AIRCRAFT

koje će održati

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na ***Fakultetu strojarstva i brodogradnje, Zagreb, Ivana Lučića 5, dvorana F.***

Više o predavanju može se naći na web stranici: http://www.csm.hr.

PREDSJEDNIK DRUŠTVA

Prof. dr. sc. Zdravko Virag

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Abstract:

Analysis of dynamic loads (from buffet and gust interference) and of flutter on transport aircraft requires reliable CFD-based models of unsteady aerodynamics, especially in transonic and separated flow regime. Corresponding CFD codes like the DLR TAU code have achieved a high degree of maturity and have been validated by windtunnel and flight tests. This will be discussed for several examples of unsteady aerodynamics at DLR, including forced oscillations of control surfaces, high Reynolds number flows, interferences with unsteady wakes and shock buffet. On the other hand these simulations are still very expensive. During development and certification of an aircraft many thousands or even millions of different cases have to be computed. Thus industrial application needs urgently methods to strongly reduce the computing times or the number of CFD runs. Different approaches are currently developed and presented. Among them are fast unsteady or time-linearised CFD methods (linear TAU Navier-Stokes code, boundary-layer coupled Euler code), the iSKEM correction method and so-called reduced order methods (ROM), like transfer function methods and Proper Orthogonal Decomposition methods. Some of these methods are presented and their capabilities and their validation are discussed.

Curriculum Vitae

Ralph Voß

Born in 1949

- Diploma in Physics at University of Hamburg
- PhD in Physics at University of Göttingen
- From 1976-1979 research scientist at Shipbuilding Institute of University of Hamburg
- Since 1979: research scientist at DLR (German Aerospace Center) at Göttingen Institute of Aeroelasticity
- Group Leader “Unsteady Aerodynamic Modelling” at DLR Inst. Of Aeroelasticity
- Research fields:
  - Unsteady Aerodynamics in transonic and separated flow for aircraft and bluff bodies
  - Numerical methods development (CFD, linearised CFD, boundary-layer coupling, panel methods, Reduced Order methods)
  - Aeroelasticity of transport aircraft