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Research interests:

- Flight mechanics, aeroelasticity and control of rotary and fixed wing vehicles.
- Wind energy, design, aeroelasticity and active control of wind turbines
- Computational mechanics, flexible multibody dynamics, adaptive finite element methods

Visiting appointments (selected):

- Associate Professor of Aerospace Engineering, Daniel Guggenheim School of Aerospace Engineering, **Georgia Institute of Technology, Atlanta, Georgia, USA**, 2003-2004. Visiting Associate Professor, 2007. Adjunct Associate Professor, 2005-2006. Visiting Scholar 1998-1999.
- Visiting Associate Professor, Lawrence Livermore National Laboratory, **University of California at Berkeley**, Livermore, CA, USA, 2002.
- Visiting Scientist, ICASE, Institute for Computer Applications in Science and Engineering, **NASA Langley**, Hampton, VA, USA, 2001.
- Visiting Scientist, National Renewable Energy Laboratory (NREL), **National Wind Technology Center**, Boulder, CO, USA, 2008.
- Visiting Associate Professor, **Army High Performance Computing Research Center**, Minneapolis, MN, USA, 2004.

PODACI O PREDAVANJU (Fakultet strojarstva i brodogradnje, Sveučilište u Zagrebu, 31. ožujka 2009. u 12 h, istočna zgrada, Plava dvorana)

Naslov:

Aero-servo-elastic Multibody Dynamics: Applications in Rotorcraft Flight Mechanics and Wind Turbine Modeling

Sažetak:

Multibody dynamics technology has matured to the point of not only enabling the simulation of complex aero-servo-elastic systems, but also of permeating the design and verification process of many engineering systems. This is pushing the development of corollary technologies, such as model reduction (for example, for the synthesis of control laws) and system identification (for tuning of the model parameters from experimental observations).

In this talk we will describe recent work in two application areas in multibody dynamics which exemplify this trend. The first deals with the simulation of maneuvers at the boundary of the operating envelope of helicopters and tilt-rotors, typically in emergency conditions such as engine failures during take offs and landings. The second application area is concerned with the development of advanced control laws for load alleviation in multi-MW wind turbines. For both, we will describe modeling needs and corollary enabling technologies with the help of problems of industrial relevance.

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Kontakt osoba i daljnje obavijesti

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Zavod za zrakoplovstvo