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DIPARTIMENTO DI
SCIENZE E TECNOLOGIE
AEROSPAZIALI



Interactional Rotorcraft Aeromechanics Current Research and Future Challenges for Vertical Lift Aircraft

Dr. Juergen Rauleder

8 October 2018, h. 17:15

Building B12, Second Floor, Sala Consiglio DAER

Dr. Juergen Rauleder will briefly introduce the Vertical Flight Society, its current efforts and how it can help students in their careers.

The main part of the talk is on his and his group's current research efforts: two-way coupled real-time aerodynamics/flight dynamics with significant adverse coupling between aero- and flight dynamics, including interactional aerodynamics, e.g. in manned and unmanned flight for ship deck landing, flight in off-shore windfarms and in urban environment, the EU funded project "SABRE" on morphing rotor blades for rotorcraft efficiency, experiments and computations on the aeromechanics of coaxial rotors for high-speed flight, and flow field measurements/CFD simulations on timevarying ground effect.

The talk will point out research areas that are not well understood and thus offer huge potential for the next generation of rotorcraft and vertical flight engineers. The future of vertical lift will be built, in part, on distributed electric propulsion concepts for urban air mobility. Much work needs to be done in the areas of interactional aerodynamics, aero-propulsive interactions and their couplings to flight dynamics and controls.

Dr. Juergen Rauleder works at the Institute of Helicopter Technology at the Technical University of Munich, where he heads the Aeromechanics Group and teaches Rotorcraft Aerodynamics. He received a Masters from the University of Stuttgart and a PhD from the University of Maryland under the guidance of Prof. Gordon Leishman. He is a Senior Member of AIAA and covers senior roles in the VFS.

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