Program VKI-GRAIN Lecture Series 4-6 July, 2011

Advanced Methods and Tools for Reducing Environmental Impacts in Aeronautics Design for Aircraft and Aero-engines

www.vki.ac.be/lectureseries/grain2011

The 5 themes of the Lecture Series are identified as follows:
KGT1: reduction of NOX emission
KGT2: reduction of CO2 emission
KGT3: reduction of noise emission
KGT4: environmentally friendly materials
KGT5: advanced High Performance Computing (HPC)

Color codes given to the speakers:
Red: Chinese speakers
Blue: European speakers

Monday 4 July

9:00-9:30　　Introduction VKI, H. Deconinck
　　　　　　Welcome address D. Knörzer (EC DG Research Aeronautics, HUA Jun, Chinese Aeronautical Establishment (CAE) and J. Periaux (CIMNE, Spain),

Session 1　　**Chairman D. Knörzer**

9:30-10:10　　Bruno Stoufflet, Dassault Aviation, France, *"Strategies for Greener Aircraft technologies"*

10:10-10:50　　HUA Jun, CAE, *"On the progress of Chinese Civil Aviation"*

10:50-11:20　　Coffee break

Session 2　　**Chairman YI Xiaosu, BIAM**

11:20-12:00　　KGT4: P. Camanho, U. Porto, Portugal, *"Advanced polymer composites for lightweight aircraft structures"*

12:00-13:50　　Lunch

Session 3　　**Chairman HUA Jun**

13:50-14:30　　KGT1: ZHANG Man, ACAE, *"Numerical Investigation of Lean Premixed Prevaporized Combustion with Pilot Diffusion Flame in a Model Low NOx Emission Combustor"*

14:30-15:10　　KGT4: S. Oller, CIMNE/UPC, Spain, *"Advanced model for finite element analysis of composite materials"*

15:10-15:40   Coffee break

15:40-16:20   KGT2: T. Verstraete, VKI, Belgium, *"Propeller optimization for greener aircraft"*

16:20-17:00   KGT5: *K. Hillewaert, CENAERO, Belgium, "Discontiunous Galerkin Method for advanced large-scale simulations in aeronautics"*

17:00 - 18:30 Welcome reception in the VKI restaurant

Tuesday 5 July

Session 4a   Chairman H. Deconinck, VKI
Session 4b   Chairman S. Oller, CIMNE/UPC

9:00-9:40   Session 4a, KGT2: REN Yuxin, Tsinghua University, *"High order numerical method and its applications in flow control study"*
Session 4b, KGT4: J.A. Santelli, LEITAT, Spain, *"Challenges in environmentally-friendly polymers. An industrial point of view"*

9:40-10:20   Session 4a, KGT3: Ch. Schram, VKI, Belgium, *"Modeling aircraft noise sources through aeroacoustic analogies"*
Session 4b, KGT4: YI Xiaosu, BIAM, *"Natural materials for air transportation, an international joint efforts"*

10:20-10:40   Coffee break

10:40-11:20   Session 4a, KGT3: WANG Jinjun, BUAA, *"Applications of Mechanical/Plasma Gurney Flap in Lift-Enhancement and Noise Reduction"*
Session 4b, KGT4: J. Dekker, AIRBORNE, Netherlands, "*State-of-the-art of composite manufacturing processes"*

11:20-11:50   Session 4a, KGT5: ZHOU Lei, ACTRI, *"Ongoing developments of parallel CFD research in ACTRI"*
Session 4b, KGT4: XUE Lixin, CAS, *"Advanced Polymeric Materials From and For Greener Processes"*

11:50-12:30   Session 4a, KGT3: HUANG Wenchao, ASRI, *"Measurement, Control methods and Design strategy for aircraft noise reduction-- new developments in China"*

12:30-13:50   Lunch

13:50-15:00   Visit to VKI Wind tunnel facilities

15:00-15:20   Coffee break

Session 5   Chairman J. Periaux, CIMNE/UPC

15:20-16:00   KGT5: ZHOU Lei, ACTRI, *"Ongoing developments of parallel CFD research in ACTRI"*

16:00-17: 00   KGT2: Nico Gauger, RWTh Aachen, Germany, *"Advanced CFD and one shot/goal oriented optimization for drag reduction in aeronautics"*

19:30   Lecture Series dinner in the center of Brussels at restaurant Millesime (www.restaurantmillesime.be)

Wednesday 6 July

Session 6   **Chairman J. Periaux, CIMNE/UPC**

9:00-9:40   KGT2: NING Qin, U. Sheffields, UK, *"Controlling Shock Waves on Natural Laminar Flow Wings for Drag Reduction"*

9:40-10:20   KGT2: R. S. Donelli, CIRA, Italy, *"Drag Reduction through Natural Laminar Flow. State of the Art and Next Developments"*

10:20-10:40   Coffee break

10:40-11:20   KGT5: CHEN Jianjun, ZJU, *"Enabling Environments for Large-Scale Numerical Simulations and Its Applications in CFD"*

11:20-12:00   KGT2: K. Kontis, U. Manchester, UK, "tbd"

12:00-12:40   KGT1: DENG Yuanhao, GTE, *"Research and Development of Single-dome Lean-Burn Low NOx Combustor"*

12:40-14:00   Lunch

Session 7   **Chairman H. Deconinck, VKI**

14:00-15:00   KGT2 and KGT5: A. Abbas, Airbus, Spain, *"Aerodynamic technologies for more effective, environmentally friendly air transport system"*

15:00-15:30   KGT3: LIU Guozheng, ARI, *"Progress on drag prediction and reduction for aircraft"*

15:30-16:00   Coffee break

Session 8   **Chairman J. Periaux, CIMNE/UPC**

16:00-17:00   Final Panel Discussion

17:00   Closing of the Lecture Series