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*Director, International Affairs, CAE*

# GRReener Aeronautics International Networking (GRAIN)

## Open GRAIN Workshop 2012 Beijing, 26 – 28th March 2012

*Environmentally Friendly Advanced Modelling,  
Experimentation, Large Scale Simulation and Smart  
Structures/ Materials for Greener Design in Aeronautics*

### **Organized by**

- Chinese Aeronautical Establishment (CAE)
- International Centre for Numerical Methods in Engineering (CIMNE)

In association with Chinese Ministry of Industry and Information Technology (MIIT) and European Commission (EC)

**Venue: Prime Hotel, Beijing, China**

**For registration please visit:**

**<http://www.cimne.com/grain>**



### **Advisory Committee**

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## **Objectives**

Among critical environmental problems, the continuous increase of global air transport generates an increasing use of hydrocarbon fuel with growing emission of CO<sub>2</sub> and NO<sub>x</sub>. It is well known that commercial aircraft operations cause an impact to the atmosphere by emissions of greenhouse gases and by the formation of contrails.

The Chinese aviation industry has been keeping two digits growth rate in the past 30 years and will remain increasing, which draws much attention from the society and the government to the environment friendly air transportation and the advanced technology for greener aircraft development.

At the Aerodays 2011 conference in Madrid Europe's Vision for Aviation 'Flightpath 2050' has defined long-term goals for greener aeronautics performances: 90% reduction in NO<sub>x</sub> emissions, 75% reduction in CO<sub>2</sub> emissions, and a 65% reduction of perceived noise.

Advanced technologies for greening aviation will gain an increasing role to meet future requirements on emissions reduction, fuel consumption and noise reduction and the use of environmentally friendly and smart materials and structures.

The main objective of this GRAIN Workshop is to identify key technology areas for greening including advanced methods and tools for modelling, large scale simulation, experimental validation, environmentally friendly materials and smart structure applications, which are of need and interest for European and Chinese actors in aviation and have the potential for a 'win-win' co-operation for Europe and China.

## **Lecture sessions / Panel discussions**

- Special session of invited speakers
- Key Greening Technology (KGT) Sessions
  - Session 1: Emission Reduction technologies
  - Session 2: Drag Reduction Technologies
  - Session 3: Noise Emission Reduction
  - Session 4: Environmentally Friendly Materials and Structures
  - Session 5: High Performance Computing for Aeronautical Applications
  - Session 6: Smart Structures & Materials
- Synthesis session with panel discussion on future green challenges

Each Key Greening Technology Session will consist of an introduction of the KGT chairperson, two presentations followed by a panel discussion with the speakers and academic/industrial experts. A synthesis session with the participation of academic, industrial and governmental institutions will conclude the findings of the event.

## **EU-China Day on Research & Innovation Policy in Aviation**

Senior representatives of Industry and research as well as from the Ministry of Industry and Information Technology (MIIT) and the European Commission (EC) will address future needs and perspectives for Aviation ('Flightpath 2050'). Possibilities for co-operation in research and innovation will be tackled.

## **Expected outcomes of the GRAIN 2012 Workshop**

- To identify technologies roadmaps for greening aviation in particular in the areas of innovative large scale modelling, simulation and optimization instruments,
- To identify multidisciplinary strategies for the implementation of methods and tools targeting greener aircraft and aero-engine design,
- To intensify the ways of co-operation and dissemination of relevant knowledge for greening,
- To assess the progress of ongoing EU-China projects,
- To provide inputs on candidate technology topics for possible future EU-China research co-operation in aviation.

## **Who should attend?**

The workshop will be of interest to engineers and researchers involved in areas of greening technologies for aviation as well as for experts, managers and officials interested in aeronautics co-operation between China and Europe.