FIRST ANNOUNCEMENT

AircraftFire Colloquium

8th-10th July 2014,
Room Delvaux at CLORA,
Avenue des Arts 8, 1210 Brussels, Belgium

The flammability threat of composites on aeronautical fire safety:

Analysis of the fire risks and passenger survivability

A two and half days Colloquium focused on:

- **Fundamentals and state of the art in fire safety in aeronautics**
- **New issues for fire safety in aeronautics**
- **AircraftFire and beyond: Discussion panel on follow-up activities for fire safety in aviation**

This colloquium brings together interested people from science (students and researchers from academia and research centres), from industry (engineers, aircraft designers, parts manufacturers,...) and professionals from or related to public services, who are working in the field of fire safety in aeronautics.

The Context:

For 20 years, the fire threat in aeronautics has been drastically reduced. But in new generation aircrafts the massive use of flammable composites, substituting metallic structural elements, changes the understanding of fire risk, and influences the fire safety approach for passenger and crew safety and survivability during fire incidents.

As recent contribution the FP7 project AircraftFire (AcF) is aimed at the characterisation of the flammability and burning properties of aeronautical composites for fuselage, wings, structures, fuel tanks, cabin materials and their influences on the mechanical behaviour and at the investigation of the effects on in-flight fire growth in the cabin and on passenger evacuation during post-crash fire.

The Objectives:

The first part of the meeting, on July 8th, will provide "Fundamentals and state of the art in fire safety in aeronautics". Experts from the AircraftFire project will present the main physical phenomena involved in aeronautical fires as well as the experimental and numerical methodologies developed by AircraftFire.

The second part of the meeting, on July 9th and 10th, will be particularly focused on "New issues for fire safety in aeronautics". Areas such as the fire retardants, the mechanical strength of burning composites and ignition by equipment devices are not in the focus of the AircraftFire project. External experts will share their experience to identify the remaining lack of knowledge and understanding in these domains. An open panel discussions will address topics of aeronautics fire safety related to batteries, seat foam, thermo-acoustic blankets, engine fires, avionics equipment, fuel tank inerting, oxygen threat (masks and fuel cell), firefighting. Presentations outlining the current regulations and the physical aspects of certification tests for the materials complete the holistic approach of this event.

This approach takes researchers to share their knowledge with industrial, political and regulatory actors and vice versa in order to identify the new challenges on materials and modelling to improve further the fire safety in aeronautics.

A synthesis of the days will be made by a representative of Airbus and a representative of the European Commission will conclude the meeting.

Increasing the knowledge on the interdependencies and mechanisms related to the fire threat in new generation aircraft shall help all participants of this event to express more easily the medium and long term needs for research and innovation and to identify break-through technologies to reach the "Holy Grail" of fire safety.

Registration fees: 200 €
The colloquium is mainly supported by the AircraftFire project. The registration fees include coffee breaks, lunches and the networking dinner.

Please contact us: aircraftfire@ensma.fr

Further details will be available soon on the AircraftFire website: www.aircraftfire.eu. Alternatively you can send an email to the email address given above to get your update directly.

Preliminary programme: AircraftFire Colloquium

Fundamentals and state of the art in fire safety in aeronautics, July 8th, 2014

10:00 Welcome, JM Most, AircraftFire

10:10 Session 1/ Experimental studies

10:10 AircraftFire Methodology towards fire safety improvement, JM Most, Pprime

10:35 Analysis of aircraft accidents (cabin fire, hidden fires, post crash, etc.) G.Greene, CAA

10:55 Coffee break

11:15 Fire dynamics for aircraft fire (pool fire, flashover, etc.) B.Karlsson, Univ. Iceland

12:05 Material flammability and modelling for aviation, M.Delichatsios, FIRESERT, Belfast

13:00 Lunch

14:00 Development of new test methods for confined fires, T.Panidis, Univ. Patras

14:25 Thermal properties of composites before ignition, C.Pradère, Trefle, Bordeaux

14:50 Characterisation of Smoke formation and emission, A.Coppalle, CORIA, Rouen

15:15 Fire detection and protection for aviation, M. Delichatsios, FIRESERT, Belfast

15:35 Coffee break

16:00 Session 2/ Modelling

16:00 Existing pyrolysis models A.Coppalle, CORIA, Rouen

16:20 External pool fire modelling by SMARTFIRE, F.Jia, Univ. Greenwich

16:45 Modelling for test and fire scenarios including evacuation, Ed Galea, Univ. Greenwich

17:20 **Conclusion of the day**

How material characterisation and modelling can help to improve fire safety in aeronautics? JB Saulnier, Pprime

17:30 End of the day

New scientific issues for fire safety in aeronautics, July 9th, 2014

8:45 Objectives of the days, JM Most, Pprime

9:00 Session 3/ Performance of Materials and Structures during fire

9:00 Mechanical performances of composites under load, D.Bertheau, Pprime

9:25 Thermo-mechanical behaviour of composite under stress, D.Halm, Pprime

9:50 Numerical approach for structural analysis, R.Alderliesten or D.Gransden, TU Delft

10:15 Behaviour of composite structures in fire (George Kotsikos, Univ. New Castle)

10:45 Coffee break

11:05 Session 4/ Fire retardants for aeronautic composite materials

11:05 Fire Retardants, Bernhard Schartel, BAM, Berlin

11:35 Chemical aspect of fire retardants, A.C Gaumont, ENSICAEN

12:05 Intumescence of materials, S.Duquesne, Lille

12:35 Questions and Discussion panel:
Advanced additives for aeronautic materials, M. Delichatsios, FIRESERT, Belfast

13:00 Lunch

14:00 Session 5/ Material qualification

14:00 Standard tests and test scale effects, C.Riera & S.LeNévé, DGA Techniques Aéronautiques, Toulouse

14:30 ONERA approaches in fire safety and Modelling of standard tests, P.Millan, ONERA

15:00 **Session 6/ Industrial technological breakthrough, Tests and Material qualification: Aircraft designers' and Parts manufacturers' "Holy Grail"**

Adaptation of aircraft equipment to specific customer requirements, Inerting of fuel tanks, Engine fires, Battery fire, seat foam burning, Electrical ignition and avionics systems, Thermo acoustic insulation, hazard due to gas leakage, Extinction agents, State of the art on Cargo fire extinction, Halon replacement, etc.
Participants of the discussion panel: SAFRAN, ONERA, Jehier-Hutchinson, SOGERMA, Zodiac, …

16:20 Session 7/ Airport fire brigade problematic by ADP and Frankfurt airport representatives

16:40 Coffee break

17:05 Session 8/ Conclusions on materials performances: From AcF main results to new scientific issues, JB Saulnier, B. Karlsson

17:30 End of the day

19:30 Dinner

Knowledge improvement by AircraftFire and Outlook, July 10th, 2014

8:45 Session 9/ AircraftFire project progress

8:45 State of the art including AircraftFire results, JM Most, all AircraftFire partners

9:50 Session 10/ Outlook: Discussion Panel on follow-up activities for fire safety in aviation

9:50 Material challenges: New laboratory burnthrough test, JM Most, Pprime
Discussion panel:
New challenges in material composition and characterisation, S.Bourbigot, M.Delichatsios, JM Most, C. Riera

10:45 Coffee break

11:05 Discussion panel:
Thermo-mechanical properties of materials, G.Kotsikos, D.Halm, R.Alderliesten, D.Bertheau

11:30 Modelling challenges
Discussion panel:
Modelling of material pyrolysis: new models and numerical tools, perspectives, S.Puglièse, A. Coppalle, P. Millan

11:55 Session 11/ Synthesis and conclusions

Towards an evolution of regulation, X.Vergez, EASA
Synthesis on enhancement of fire safety in aeronautics, B.Karlsson and S.Puglièse

12:45 Conclusion by the EC delegate P. Ibanez Illana

13:00 Lunch

14:00 End of the colloquium