Application for Project Ideas

for the AeroPortal 3rd Call FP7 Workshop

Would you like us to try to find interested companies with your projects ideas, please send us a short project abstract (by the 7th October) which we will display on this webpage under the match-making section.

The match-making concept is only designed to help you to find partners, a coordinator, technology,…

This webpage can be found at: http://www.aeroportal.eu/ap3callfp7workshop.html

Project Ideas	
Proposers of the idea:	**National Aerospace University " Kharkiv Aviation Institute" named by N.Ye.Zhukovskiy**
Type of Organisation: (SMEs, University, Research Center,…-	**University**
Call identifier:	**FP7-AAT-2010-RTD-1**
Topics called:	**AAT.2010.3.3-1. Aerostructures**
Funding Instruments:	CP-FP (Small or Medium scale focused research) ☒ CSA-CS (Coordinating) ☐ CSA-SA (Supporting) ☐
Project Title:	**Composite Aircraft Lightning-Strike Protection with Advanced Materials**
Project objectives:	**To achieve the following impact:** **- Twice more effective in lightning energy dissipation comparatively to the best examples of widely used extended foils** **- 50% less in weight** **- Using for after-strike repair of composite airframe structures for upper layer conductivity restoration**
Project abstract: Be concise! Avoid abbreviations (Max. 3000 characters incl. spaces. Any exceeding words will be discarded.)	**Wide composite structures application is the nearest future of aircraft design. Beside well-known advantages, composites create some new specific problems. Lightning strike protection of composite airframe is one of them. Since composite conductivity is pretty low, conventional approach to lightning strike protection is embedding of conductive materials into upper layer of composite panels. Materials used for this purpose are: conductive coatings, foils, extended foils etc. made of conductive materials, mostly aluminum.** **The scope of this project is application of novel materials combination:** **1) knitted mesh made of 0.8 mm copper wires with controlled cell dimensions. To increase mesh conductivity interweaving points can be soldered with non-lead solder or welded.** **2) epoxy resin modified with carbon nano-tubes (CNT) with embedded molecules of iron (Fe). Fe-CNT epoxy curing under magnetic field can help to organize CNT chains with increased conductivity.** **Integration of mentioned materials would give synergy effect in increased conductivity. Preliminary tests of mentioned approach has shown that new lightning strike protection materials are twice more effective in lightning energy dissipation comparatively to the best examples of widely used extended foils, and 50% less in weight. Mentioned approach can be also used for after-strike repair of composite airframe structures for upper layer conductivity restoration.**
Project structure (WPs, duration,..) *	**Following Work Packages assumed:** **1. Copper knitted mesh conductivity research and optimization, manufacturing process development** **2. CNT-Fe epoxy resin curing process research and optimization for highest conductivity, manufacturing process development** **3. Composite panels test samples manufacturing using several conventional and developed materials** **4. On-ground comparative lightning strike testing of manufactured panels**
Estimated budget *	
Project Coordinator	Yes ☐ No ☒
What are you looking for (a coordinator, partners, technology, other,…)? Please specify.	**We are looking for:** **1. Project coordinator** **2. Partners interested: Universities, research labs, composite aircraft/parts manufacturers (incl. SMEs)**
The person identified above confirms that the data provided in this form are correct and that **permission is given to publish this data in the MatchMaking table located in the Workshop page.**	Yes ☒

* Not Mandatory

Please return the completed form **BY THE 7th October 2009** to AeroPortal, Ms. Monica Ibido, aeroportal@asd-europe.org.
For more details refer to the AeroPortal homepage www.aeroportal.com.