

Novel technology could combat flight pollution

February 2 2015, by Marie Daniels



A breakthrough propulsion technology to provide greener air transport could be developed after the underlying engineering was declared a success.

ACHEON, involving six universities and two research organisations from across the EU, aimed to demonstrate the scientific feasibility of a novel propulsion method which is expected to overcome the main limitations of traditional systems related to jet deflection exhausts.

This [revolutionary technology](#) is capable of directing the flow and pressure without any mechanical moving parts, which could see shorter take-off and landing, more comfortable and safe flight operations and

greener propulsion.

This [emerging technology](#), funded by the 7th Framework Programme of the European Commission, is an example of a project starting from an academic research basic which aims to produce an impact in terms of effective industrial innovation.

A team at the School of Engineering, University of Lincoln, UK, was responsible for evaluating the [technology](#) and its potential integration within aircraft.

Tim Smith, Senior Research Fellow at the University of Lincoln, said: "The EU recognises the need for new technologies that will provide a new impetus in the development of future [air transport](#).

"This project was instigated in order to assess the underlying science and its potentially disruptive impact on propulsion technology, rather than physically creating an engineering demonstrator - although experimental nozzles were constructed. We, however, have gone beyond that remit and have begun looking at how the nozzle technology could be used in other industrial applications, such as in the agricultural sector."

The team evaluated the technology for a number of cases, which were an unmanned aerial vehicle (UAV), a vertical take-off and landing (VTOL) military type application and both a large and small passenger transport aircraft.

The ACHEON concept is based on two cornerstone technologies; the HOMER nozzle concept by University of Modena and Reggio Emilia, Italy, and PEACE - Plasma Enhanced Actuator for Coanda Effect - to enhance the effects of the nozzle - by University of Beira Interior, Portugal. The technology is particularly suited to electric propulsion by improving both performance and reliability while reducing the overall

weight of the air vehicle.

The results were presented at special public event held in Italy, which outlined some of the key outcomes and patents arising from the project; such as the fact the technology is suitable for small UAVs and will produce a significant improvement in performance for both military and civil aircraft in both manoeuvrability and efficient, greener, operation.

Provided by University of Lincoln

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