Soot in aeronautics - towards enhanced aeroengine combustor modelling (SIA-TEAM)

Results in Brief

Developing engines for greener flight

The expected rapid increase in air transport means that new technologies are needed to reduce the air pollution caused by the sector. A team of researchers from across Europe looked into a new modelling system to test soot emissions for different aviation fuels.

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The development of new aero-engine concepts relies heavily on computational fluid dynamics (CFD) modelling to evaluate the effect of different design features on combustion process and emissions.

Such modelling reduces the need for expensive rig tests, enabling more efficient development. However, accurate modelling depends on the quality of data input.

The Sia-Team project is the first step in turning research into industrial application. Researchers started with a detailed investigation into the influence of different kerosene fuel compounds and blends on soot formation.

The team developed an 'enhanced and validated mechanistic soot model' for these fuels. This was then translated into usable codes for CFD modelling to simulate the

combustion conditions found in aero-engines.

The project, which was partly funded by the European Union, drew together partners in industry and academia from Germany, France, Italy and the United Kingdom.

The results of the project should make an important contribution to the development of the next generation of cleaner airplane engines – bringing the age of greener flying one step closer.

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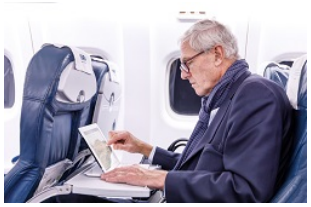

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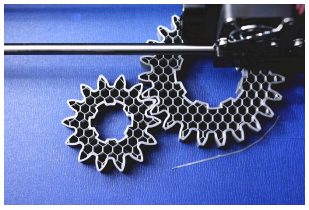

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Project Information

SIA-TEAM

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