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JISFA4#5 - Smart Acoustic Lining for UHBR Engines

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The SALUTE project aims at evaluating performance of electroacoustic metasurface, employing a surface array of controlled electroacoustic actuators, for smart acoustic lining under grazing turbulent flow for UHBR Engines. Theoretical and numerical investigations have been carried out for designing innovative concepts for complex aero-acoustic characterization in an engine mock-up. A specific focus was placed in the realization of prototypes for evaluating the metacomposite liner performances in 3D liners close to real engine implementation, its process complexity and robustness. This talk presents the concept development from theory to technological realization and characterization by produced numerical tools. The experimental results obtained with the liners in acoustic flow duct facilities have been realized in the PHARE facilities of Ecole Centrale de Lyon. Different configurations of liners have been tested using flow conditions of the engine: a passive liner used as reference and a 3D active liner based on an array of electroacoustic absorbers. These tests combine acoustics and aerodynamics measurements to characterize the aeroacoustics flow conditions, the membrane behavior, the achieved acoustic impedance and the resulting insertion loss.The SALUTE project has received funding from Clean Sky 2 Joint Undertaking under the European Union's Horizon 2020 research and innovation program under grant agreement N° 821093.

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