

Project 79



Novel Noise Liner Development Enabled by Advanced Manufacturing

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Objective:

Develop and demonstrate a methodology to design, analyze, and manufacture novel lattice structures that enhance noise attenuation in aircraft engines

Project Benefits:

Novel acoustic liner designs and materials will provide a new approach for aircraft engine manufacturers to realize simultaneous noise, emissions, and fuel burn reductions to meet current and future regulatory requirements

Research Approach:

1. Establish a set of acoustic requirements for future aircraft engine designs
2. Design and analyze lattice-based acoustic liners using advanced software tools
3. Rapid, iterative prototyping and testing to identify promising designs and materials
4. Detailed assessment of manufacturability
5. Acoustic and structural evaluation of novel liners in collaboration with NASA Langley
6. Document results and archive data for FAA

Major Accomplishments (to date):

New project awarded in October 2021

Future Work / Schedule:

Jan 2022: Demo/test design methodology
Mar 2022: Fab/test 5-6 lattice design samples
May 2022: Structural integrity testing
Aug 2022: Experimental acoustic evaluation
Sept 2022: Document/archive data for Year 1