

NASA SBIR/STTR Technologies

A3.08-9070 - A Novel Plasma-Based Compressor Stall Control System



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Identification and Significance of Innovation

Create proposes the development of an innovative DBD actuator system for compressor flow control which enables:

Low voltage DC power distribution.

A modular approach to achieving total power delivery.

Use of commercial-off-the-shelf switching components.

Resolution of impedance matching issues associated with other DBD charging circuit topologies.

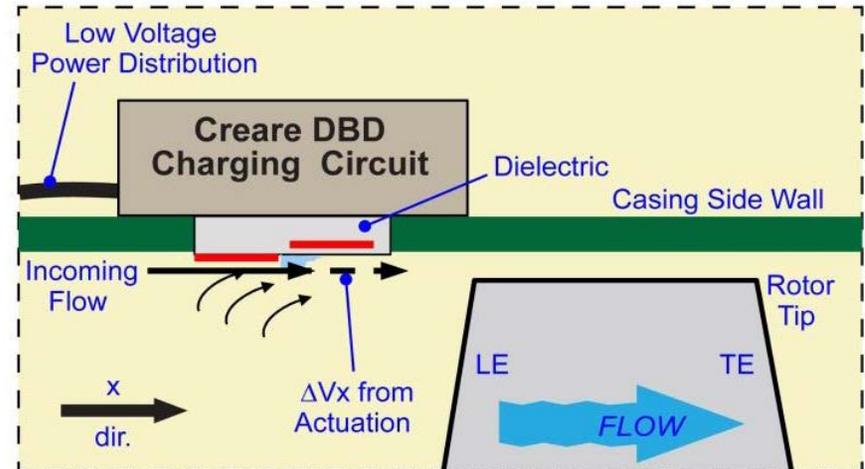
Estimated TRL at beginning and end of contract: (Begin: 3 End: 4)

Technical Objectives and Work Plan

Develop, test, and characterize the proposed DBD charging circuit.

Design and build multiple DBD actuator devices to be powered by the DBD charging circuit.

Install the DBD actuator devices in flow test facilities and characterize their performance as flow control devices.



NASA Applications

This technology supports NASA's mission to help improve the performance of commercial aviation through development of advanced gas turbine engine systems. The technology also has the potential for enabling improved gas turbine engine performance for applications as far-reaching as UAVs proposed for extraterrestrial exploration.

Non-NASA Applications

A fully developed active flow control technology for turbomachinery may also prove useful in commercial applications in which separation phenomena are known to cause performance issues, including turbine engines (for both power generation and aircraft use) and aerial vehicles.

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NON-PROPRIETARY DATA