Quiet Electric Aircraft Propulsion

CORNERSTONE RESEARCH GROUP

2022-2023 PDAC Submission

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Need: Quiet Electric Propulsion

Challenge:

- **Defense:** Traditional aircraft propulsion systems (e.g. turbofans, propellers) are noisy and limit DoD mission effectiveness due to their acoustic footprint
- **Commercial:** The growing Advanced Air Mobility (AAM) market will face significant barriers to public acceptance due to community noise emissions

Solution: Quiet Electric Ducted Fan Propulsors

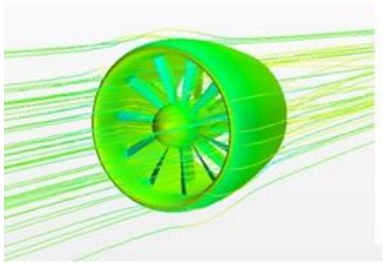
- Unmatched acoustic performance (5x lower noise footprint)
- Enables unique electric and hybrid-electric aircraft configurations for high power payloads and reduced carbon emissions
- Applicable to wide range of aircraft sizes for both defense and commercial applications (eVTOL, eSTOL, eCTOL)

Image Credits: Lilium, NASA

CRG Quiet Electric Aircraft Propulsors

CRG is a national leader in design and integration of quiet electric propulsion systems

- Custom aero-acoustic design tools demonstrated across broad size/power range (3.5” to 35” explored to date)
- Demonstrated on multiple experimental and prototype U.S. Gov’t aircraft
- Designed and built in Dayton using local manufacturing partners and domestic components



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BE THE FUTURE

Project Overview

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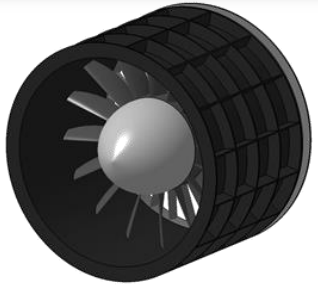
- Design and demonstrate 200-350kW class electric propulsor for next-gen DoD aircraft
- Develop affordable manufacturing processes
- Create non-proprietary electric ducted fan performance database for DoD hybrid-electric aircraft trade studies

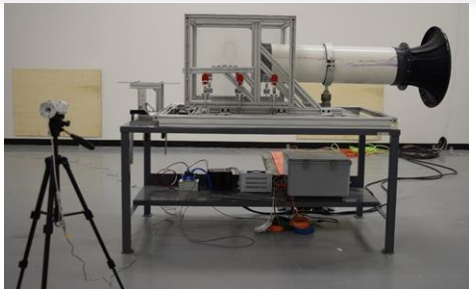
AF TACFI/STRATFI

- SBIR/STTR:Gov matching funds up to $15M

Non-Defense Applications

- CRG sells quiet propulsors commercially through its spinout Lectratek, LLC
- Lectratek is a trusted domestic supply chain and integration partner for eAviation powertrain components (propulsors, batteries, power electronics) **made in Ohio**





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