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# Wavy Shaped Cylindrical Geometries for Aero-thermal Signature Alteration

**Wavy cylindrical exhaust geometries condition aero-thermal flow to alter acoustic/thermal signatures and enhance mixing or cooling in propulsion systems.**

Researchers at Purdue University have developed wavy-shaped geometries for use in subsonic, transonic, and supersonic exhaust flows to condition the aero-thermal flow properties. This invention can be tailored to produce targeted heat transfer distributions, enhance flow mixing, or abate the acoustic signature. This technology has applications in the design of gas turbines or propulsion systems

### Advantages

-Alteration of acoustic and thermal signature

-Cooling or mixing of high-speed flows

-Work extraction from high-speed flows

### Applications

-Gas Turbines

-Aerodynamics

-Propulsion

### Technology Validation:

This technology has been validated through testing of a prototype at Purdue University's Zucrow Labs.

**TRL:** 5

### Intellectual Property:

**Technology ID**
2023-PANI-70245

**Category**
Aerospace & National Security/Hypersonics & Propulsion Systems
Aerospace & National Security/Thermal Management & Combustion Optimization
Automotive & Mobility Tech/Micromobility & Smart Urban Infrastructure

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**View online**

Provisional-Patent, 2023-08-30, United States

Utility Patent, 2024-08-30, United States

**Keywords:** Aerodynamics, Aeronautics, Engines, Fluid Dynamics, Fluid Mechanics, fluids, Heat Transfer, Mechanical Engineering, Propulsion