

## AFRL CALL FOR RESEARCH

1. **Research Title:** Flow Control for Hypersonic Inlets and Isolators
2. **Individual Sponsor:**  
Ms. Heidi Wilkins, AFRL/RQAI  
AFRL/RBAI, Bldg 24C  
2130 Eighth Street  
WPAFB, OH 45433-7542  
[heidi.wilkin@wpafb.af.mil](mailto:heidi.wilkin@wpafb.af.mil)
3. **Academic Area/Field and Education Level:** Aerospace Engineering / Hypersonic Aerodynamics and Propulsion (MS or Ph.D. level)
4. **Objectives:** Research and develop passive and active flow control for hypersonic inlets and isolators to improve performance and operability as measured by static pressure rise, total pressure loss, and distortion. Develop, model, test, and characterize unit (ie. Modular) and array concepts.
5. **Description:** The proposed project will develop and characterize flow control concepts and associated technologies for controlling and maximizing hypersonic inlet and isolator performance and operation. The device and technology should be compatible with system integration requirements including combustor operation limits, vehicle length and weight, reliability and cost. Technologies should address fluid dynamics phenomena such as viscous interactions and shock interactions; and numerical modeling and ground test approaches for development and validation. Enabling technologies include, but are not limited to, MEMS, energy disposition, and magnetohydrodynamics.
6. **Research Classification/Restrictions:** This research is unclassified and unrestricted.
7. **Interest in Summer USAFA Cadet:** No
8. **Eligible Research Institutions:**

Universities (DAGSI & AFIT)      AFIT  Only      USAFA