

AFRL CALL FOR RESEARCH

RQ14-15

1. **Research Title:** Active Wing Twist and Camber Control Without Aircraft Control Surfaces
2. **Individual Sponsor:**
Dr. James Joo, AFRL/RQVC
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3. **Academic Area/Field and Education Level:** Aerospace or Mechanical Engineering (MS or Ph.D. level).
4. **Objectives:** Research and analyze the aerodynamic performance of a conformal wing system that maneuvers without using a discrete control surface system (e.g. ailerons or flaps). The efficiency of the conformal wing system will be evaluated and compared to a conventional wing system with control surfaces.
5. **Description:** Removal of traditional control surfaces could provide large benefits such as enhanced maneuverability, decreased structural weight, maximized mission range, and increased survivability. AFRL is interested in proposals that address these potential vehicle improvements. Examples of specific research areas include, but should not be limited to: improving aileron effectiveness at high dynamic pressure through active wing twist; decreasing vehicle weight by allowing novel vehicle configurations; increasing vehicle range and maneuverability by modifying wing characteristics in flight.
6. **Research Classification/Restrictions:** None.
7. **Eligible Research Institutions:** Indicate to what organizations this topic should be provided.
 - DAGSI (Wright State University, AFIT, Ohio State University, University of Dayton, Miami University, Ohio University, University of Cincinnati)
 - AFIT (only)
 - USAFA (only)
If you are submitting a topic for the USAFA, please indicate if you are also interested in sponsoring a USAF Cadet in summer of 2014 (Avg Cost for USAF Cadet for 33 days was \$5000) Yes No