

Opportunity Title: Advanced Antenna Technology

Opportunity Reference Code: AFSTFP-AFRL-2018-B0220

Organization U.S. Air Force

Reference Code AFSTFP-AFRL-2018-B0220

How to Apply A complete application package consists of:

- An application
- A current resume/CV
- Transcript(s) – For this opportunity, an unofficial transcript or copy of academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. **Official Transcripts for Junior applicants must be sent to ORAU directly from the academic institution, including graduation date and degree awarded, and must be provided before the fellowship can begin.** All transcripts must be in English or include an official English translation.
- Three references

Additional documents to be uploaded must be in PDF format in a standard typeface no smaller than 12-point font, 1" margins, and double-spaced.

- Research Proposal (maximum of 10 pages)
- Dissertation Abstract (maximum of 1 page) *not required for Senior applicants*
- Summary of Previous and Current Research (maximum of 4 pages)
- List of Publications (maximum of 2 pages)

If you have questions, send an email to

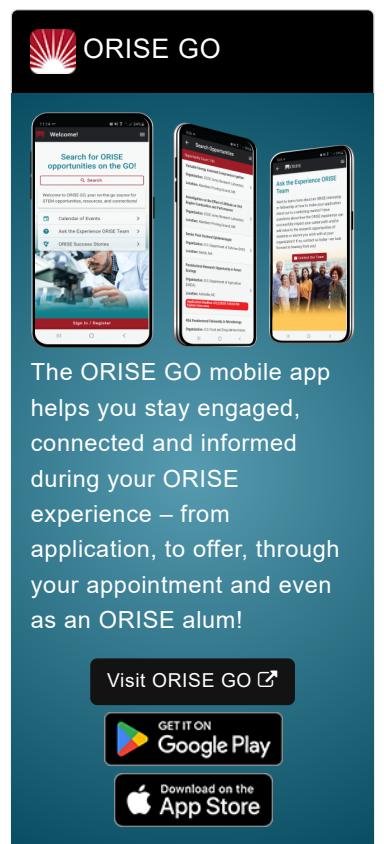
AirForceFellowships@orau.org. Please include the reference code for this opportunity in your email.

Description Research opportunities exist in the area of high-gain and multibeam antennas to support Air Force air- and spaceborne radar systems. We are particularly interested in wideband (>1 octave) and multiband systems, and in developing both new antenna designs and new efficient analysis methods. This applies to directly radiating planar and conformal arrays, as well as array-fed reflector and lens configurations, which offer the potential for an electrically scanned, high-gain beam at low cost.

Other topics of interest include wide-scan wideband planar arrays, arrays for hemispherical coverage, low-profile UHF/VHF arrays on conformal platforms, planar and conformal frequency selective surfaces, efficient electrically small antennas, and applications of metamaterials in novel antenna and lens designs.


A final topic centers on computational electromagnetics for electrically large bodies. We need to improve both frequency and time domain methods, which eventually will permit us to numerically analyze large finite planar and conformal arrays, including mutual coupling and edge effects on large complex platforms, possibly of exotic nonconducting materials including metamaterials.


References




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Josefsson L, Persson P: Conformal Array Antenna Theory and Design.
Hoboken: John Wiley and Sons, 2006

Bhattacharyya AK: Phased Array Antennas. Hoboken: John Wiley and
Sons, 2006

Research Advisor

Prospective applicants are encouraged to contact the opportunity's
Research Advisor, listed below, to discuss the applicant's approach for
responding to this research opportunity and to discuss their potential
collaboration on the research opportunity.

Dr. Boris Tomasic, boris.tomasic@us.af.mil, (937) 713-8962

Qualifications Candidates must have a Ph.D., Sc.D., M.D., D.V.M., or academically
equivalent research doctorate before beginning the fellowship.

Candidates must have U.S. citizenship. Research opportunities at AFRL,
AFIT, and USAFA are open to U.S. citizens only. Qualified applicants will
receive consideration without regard to race, creed, color, age, sex, or
national origin.

Stipend rates are determined by Air Force officials, and are based on the
applicant's academic and professional background. The fellow must show
proof of health and medical insurance. Health insurance can be obtained
through ORAU. The fellow will not enter into an employee/employer
relationship with ORAU, USAF, or any other facility, office or agency.
Instead, the participant will be affiliated with ORAU for the administration of
the appointment through the ORAU appointment letter and Terms of
Appointment.

For more information, please visit the Air Force STFP website
at <https://AirForceFellowships.orau.org>.

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
 - **Degree:** Doctoral Degree.
 - **Academic Level(s):** Postdoctoral.
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([12](#) )
 - **Computer, Information, and Data Sciences** ([16](#) )
 - **Earth and Geosciences** ([21](#) )
 - **Engineering** ([27](#) )
 - **Environmental and Marine Sciences** ([12](#) )
 - **Life Health and Medical Sciences** ([45](#) )
 - **Mathematics and Statistics** ([10](#) )
 - **Other Non-Science & Engineering** ([2](#) )
 - **Physics** ([16](#) )
 - **Science & Engineering-related** ([1](#) )
 - **Social and Behavioral Sciences** ([18](#) )