AFRL

# AIR FORCE OFFICE OF SCIENTIFIC RESEARCH
## SCIENCE AND ENGINEERING PROGRAMS OVERVIEW

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**PROGRAM OFFICER**

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# Portfolio Vision and Research Areas

Fund basic research to enable Air Force space weather needs.

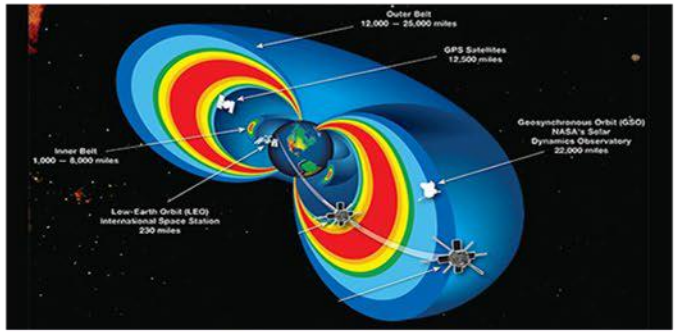
- Fund basic research to support the National Space Weather Strategy and Action Plan (March 2019)
- Increase fundamental knowledge of the Heliosphere, Magnetosphere, Ionosphere, Thermosphere, and Mesosphere

## Ionosphere/Thermosphere/ Mesosphere

- Gravity Waves, Traveling Ionospheric Disturbances (TIDs)
- Topside and bottomside ionosphere, ITM coupling.
- Adversely affects OTHR, Communications, and GPS

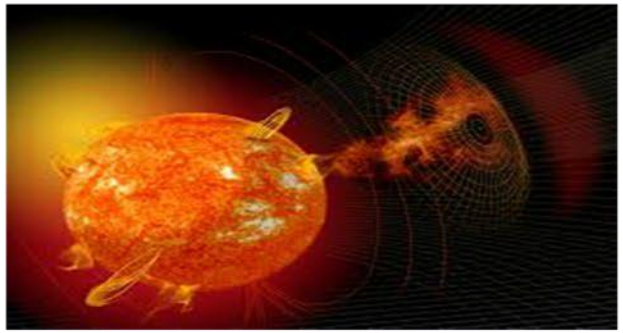
## Magnetosphere

- Radiation Belt physics
- Killer electrons and energetic ions kill satellite electronics.
- Changing radiation belt fluxes age spacecraft electronics.




## Solar

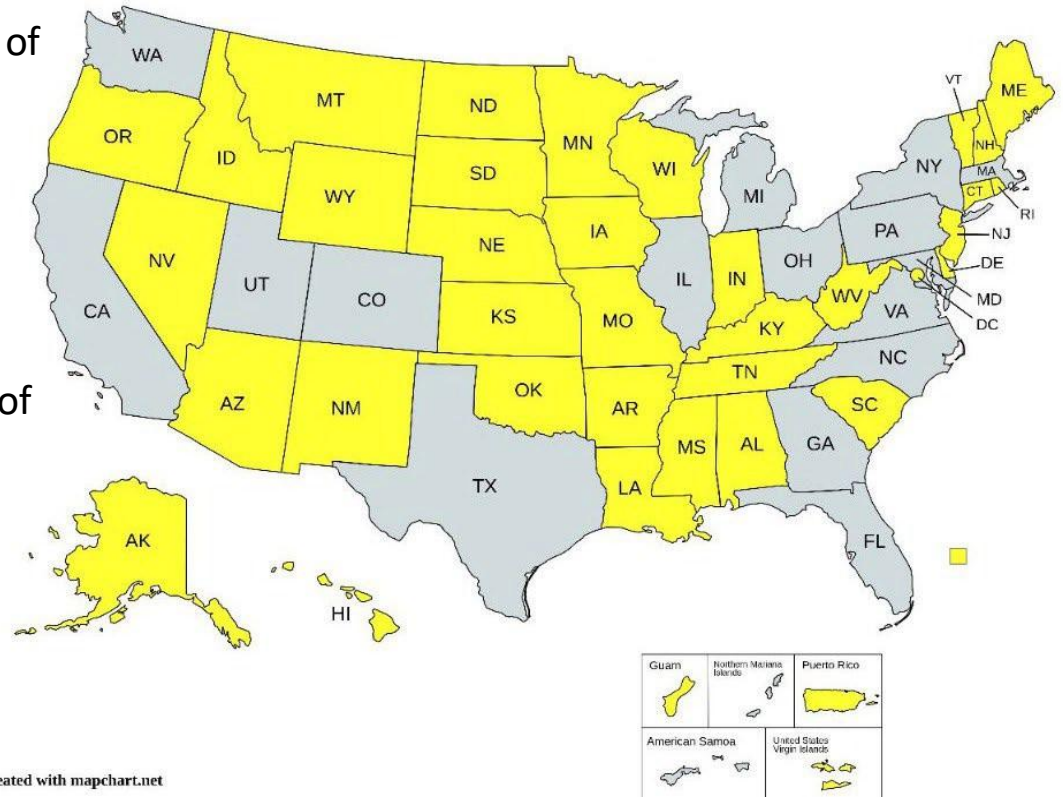
- Improving forecast of Interplanetary Magnetic Field Z-component IMF Bz.
- Solar flares cause disruption to communications, damage satellites, and affect radiation belt fluxes.



## Defense Established Program to Stimulate Competitive Research (DEPSCoR)

The Defense Established Program to Stimulate Competitive Research, Congress reauthorized the program in FY18 to build the national infrastructure by improving the capacity of institutions of higher education to conduct sustainable and national competitive defense-related basic research in historically-underrepresented 37 states and territories.

- Enhance the capabilities of institutions in eligible states and territories
- Increase the number of university researchers
- Increase the probability of long-term grown in the competitively awarded eligible states and territories

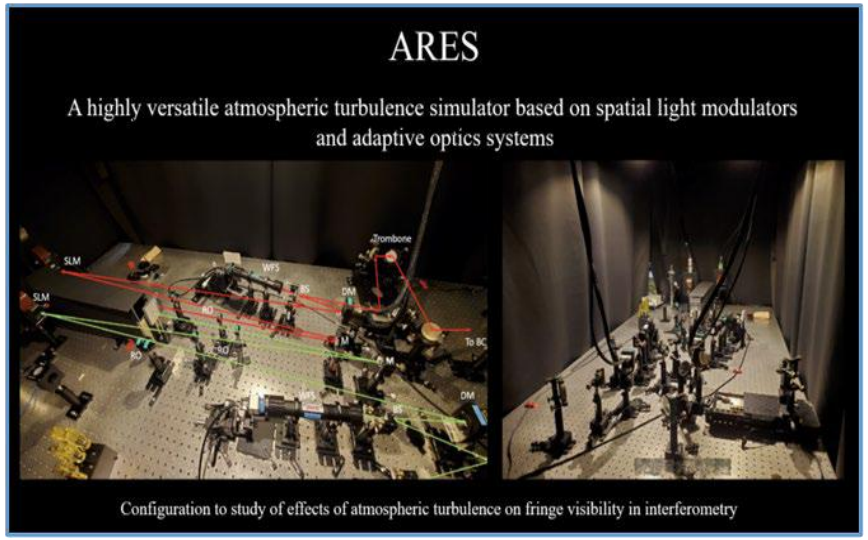


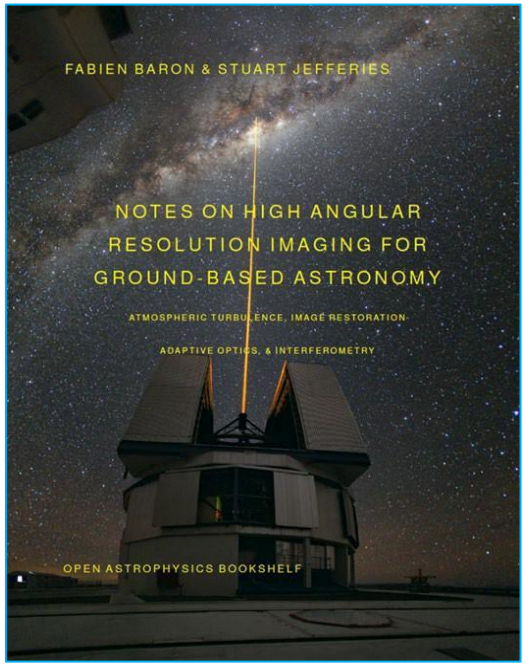

- Authorized by Congress for states and territories
- Build the national infrastructure by improving the capacity of institutions of higher education.
- 36-month efforts at $600K
- Focused on states and territories to enhance research capabilities and to grow long-term competitiveness

## Defense University Research Instrumentation Program (DURIP)

DURIP is an Office of the Under Secretary of War, Research and Engineering (OUSWR&E) sponsored tri-service program designed to improve the capabilities of accredited United States (US) institutions of higher education to *conduct research and to educate scientists and engineers* in areas important to national defense by providing funds for the acquisition of *basic research equipment or instrumentation*.Ě Each DURIP award is 12 months in length with an optional 12-month extension upon request.

- No citizenship requirements
- No past, current, or future DoD funding required
- Budget range: $50,000 to $3,000,000

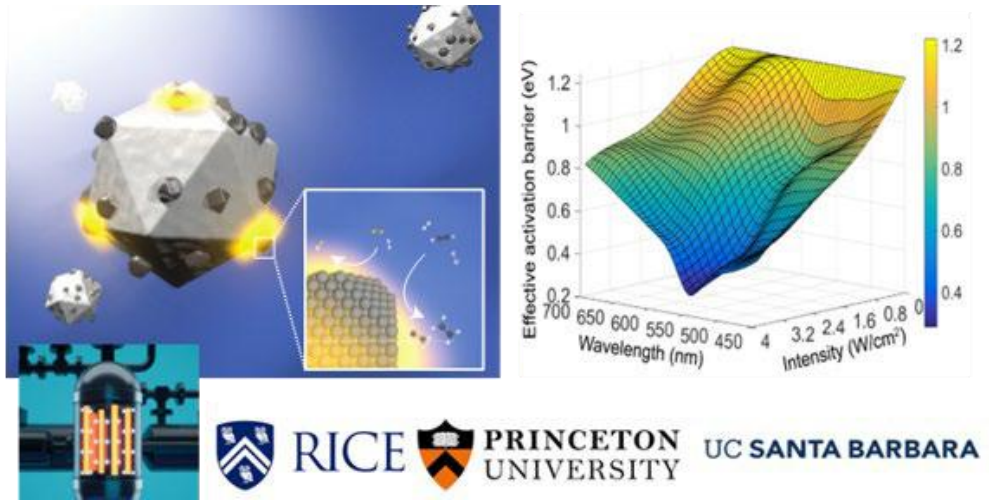


## Multidisciplinary University Research Initiative (MURI)

The MURI is an OUSWR&E sponsored tri-service program that supports academic research teams in conducting ground-breaking, field-changing basic research addressing problems that span multiple disciplines. MURIs are extremely competitive awards for high-risk and innovative research that cannot be accomplished via single investigator grants. MURI aims to make the impossible possible.

- No citizenship requirements
- International collaboration possible
- Budget: $1,500,000 per year for 3 years, plus an optional two years




- Open to all not-for-profit US institutions of higher education including DoD-affiliated schools
- Multidisciplinary team research, does not have to be more than one institution

# Technology Transfer

## DAF Small Business Innovation Development (SBIR) and Small Business Technology Transfer (STTR) Programs

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) program expands funding opportunities in the federal innovation research and development (R&D) arena. Central to the program is expansion of the public/private sector partnership to include the joint venture opportunities for small businesses and nonprofit research institutions. The unique feature of the SBIR/STTR program is the requirement for the small business to formally collaborate with a research institution in Phase I and Phase II. SBIR/STTR's most important role is to bridge the gap between performance of basic science and commercialization of resulting innovations.


Photo from: https://media.defense.gov/2015/Feb/27/2001018551/-1/-1/0/150223-F-S0991-001.JPG

- Highly competitive programs that encourage domestic small businesses to engage in DAF Research/Research and Development (R/R&D) with the potential for commercialization
- Competitive awards-based programs that enable small businesses to explore their technological and commercialization potential
- Stimulate high-tech innovation to catalyze US entrepreneurial spirit while addressing DAF's specific R&D needs
- Central to the STTR program is the partnership between small businesses and nonprofit research institutions and universities

**Additional information available at: https://www.dodsbirsttr.mil/submissions/login**

**For more information or to apply please visit: https://www.sbir.gov/**

## Young Investigator Program (YIP)

The YIP is awarded to outstanding early career S&Es who show innovative and *"high risk, high reward"* basic research directly related to AFOSR portfolios in promising and potential groundbreaking topics resulting in "high" reward.

- Three-year research grant totaling $450,000
  - Up to $150,000 annually
- Supports early career scientists and engineers who show exceptional ability and promise for conducting basic research
- Fosters creative basic research in science and engineering

- *Vested with institution* not PI
- Open to U.S. citizens, nationals, or permanent residents
  - Employed by an U.S. institution, for profit, not for profit business, or industrial lab
  - Early career faculty member (PhD< 7 years)

For more information visit https://www.afrl.af.mil/AFOSR/

# Get Funded! Get started and stay involved

- POs weigh several factors in selecting proposals for funding:
  - Identify overlap with program interests, and connection to DOD's labs
  - Potential for scientific breakthroughs
  - Strategic directions
  - Budget realities
  - Peer review to gauge scientific merit
- Once funded, remain engaged and continue with the process.
  - Continue reviewing BAAs
  - Request invitations to program reviews of interest
  - Collaborate with other PIs in the program

Workshops and Reviews

# Connect with AFRL

Student & Faculty Opportunities

Grants.Gov

**AFResearchLab**

**AFresearchlab**

**Air Force Research Laboratory - AFRL**

**AFResearchLab**

# Connect with AFRL/AFOSR

**Website**
Doing Business with AFRL/AFOSR
Announcements and Highlights

- https://www.afrl.af.mil/AFOSR/

**Events**
Find our BAA and Events Calendar
Learn about Program Reviews

- https://community.apan.org/wg/afosr/
- https://www.grants.gov/web/grants/view-opportunity.html?oppId=345653

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#BasicResearch

*Presenter Notes*
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Connect with AFRL and AFOSR As we've discussed, there are a multitude of paths you can take to partner and engage with us, so I encourage you to check out social media, all listed More importantly, we 'd love to continue our engagement with you all.

# Questions?