



# AFRL

## AIR FORCE RESEARCH LABORATORY COLLABORATION OPPORTUNITIES

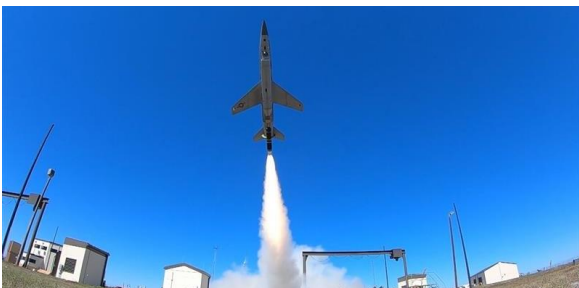
DIRECTED ENERGY DAY  
UNM  
26 APRIL 2024



# Our Research

## Development/Experimentation

Ready to Go!  
6.4+



### OPERATIONAL DEVELOPMENT/ EXPERIMENTATION

- Research, development, test and evaluation
- Strategic development planning experimentation
- Small business innovation research program

Experimentation

**~20%**

## Advance/Applied

Advanced Tech Development  
6.3



### ADVANCED TECHNOLOGY DEVELOPMENT

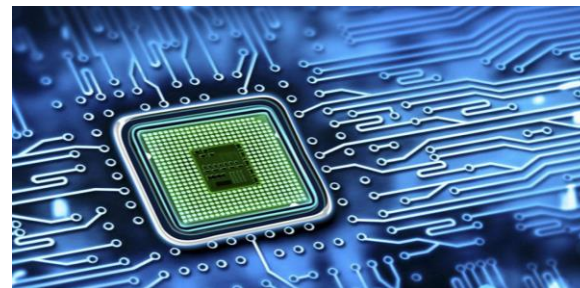
#### Capabilities Concepts

The development and integration of hardware for field experiments and tests

From Application to Capability

**~25%**

Applied Research  
6.2



### APPLIED RESEARCH

#### Technologies

Applying knowledge or understanding to determine the means by which a recognized and specific need may be met

Science to Application

**~40%**

## Basic Research

Basic Research  
6.1



### BASIC RESEARCH

#### Science Knowledge

Greater knowledge or understanding fundamental aspects

Observable facts

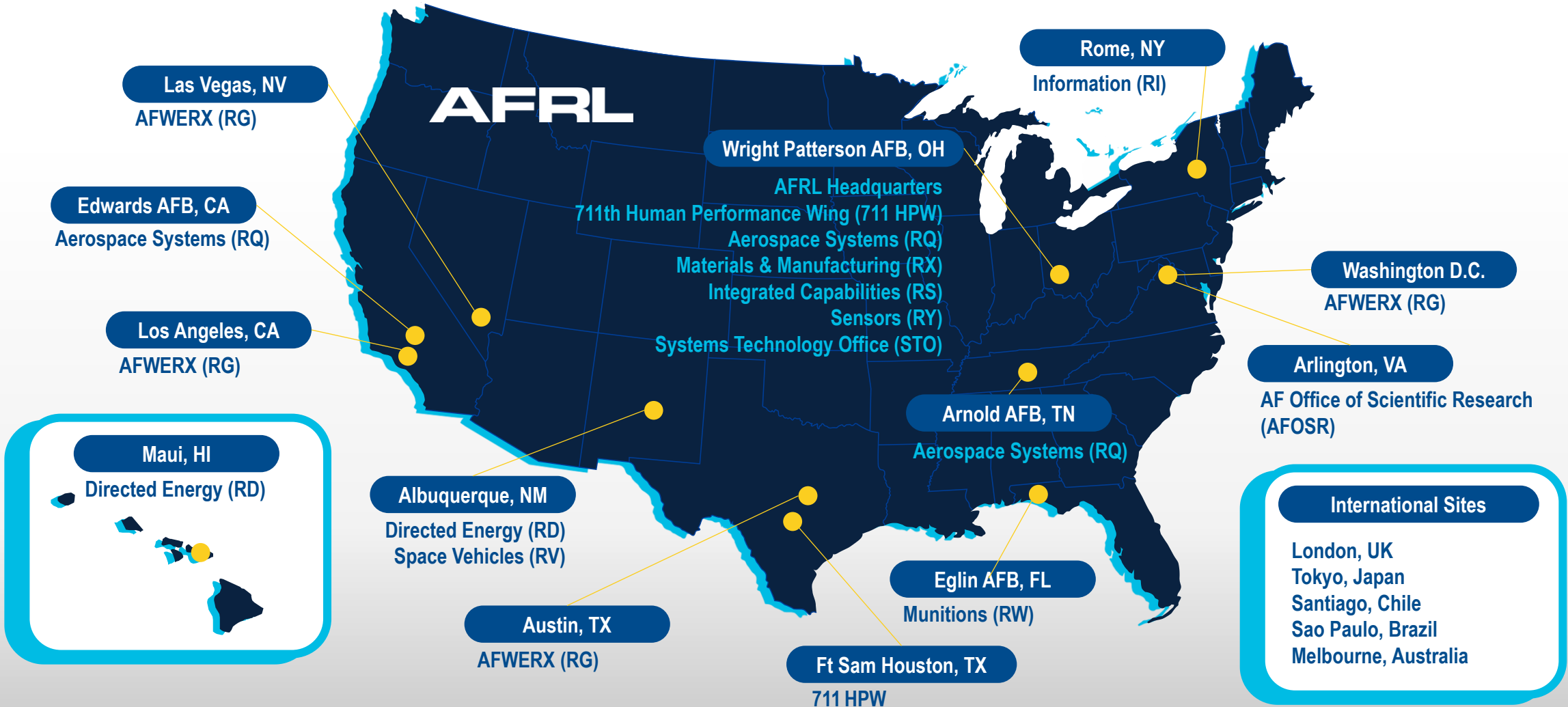
Without specific applications toward processes or products

New Science

**~15%**







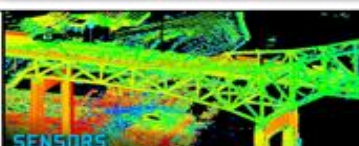





# Our Teams...Your Lab Partners!





# Our Diversity

<b>AEROSPACE SYSTEMS</b>	Aerospace Vehicles, Control, Power & Thermal Management, High Speed Systems, Rocket Propulsion, Turbine Engines	 AEROSPACE SYSTEMS	 DIRECTED ENERGY	Laser Systems, Weapons Modeling, Simulation & Analysis, High Power Electromagnetics (HPEM), Directed Energy and Electro Optics for Space Superiority	<b>DIRECTED ENERGY</b>
<b>HUMAN PERFORMANCE</b>	Training, Adaptive Warfighter Interfaces, Bioeffects, Bioengineering, Aerospace & Operational Medicine	 HUMAN PERFORMANCE	 SPACE VEHICLES	Advanced Space Resilience Technologies, Space Communication & Navigation Technologies, Space Awareness and Command & Control, Space Environment	<b>SPACE VEHICLES</b>
<b>MATERIALS &amp; MANUFACTURING</b>	Structural Materials, Functional Materials, Manufacturing Technology, Support of Operations	 MATERIALS & MANUFACTURING	 INFORMATION	Processing & Exploitation, Connectivity & Dissemination, Autonomy, Command & Control and Decision Support, Cyber Science and Technology	<b>INFORMATION</b>
<b>SENSORS</b>	Radio Frequency (RF) Sensing, Electro Optical (EO) Sensing, Spectrum Warfare, Trusted & Resilient Mission Systems, Multi-domain Sensing Autonomy, Enabling Sensor Devices & Components	 SENSORS	 MUNITIONS	Munitions Airframe, Guidance, Navigation & Control, Terminal Seeker Sciences, Modeling & Simulation Evaluation Sciences, Ordnance Sciences	<b>MUNITIONS</b>
<b>EXPERIMENTATION</b>	Capability & Technology Prototyping	 SOPE	 AFOSR	Engineering & Information Sciences, Physical & Biological Sciences	<b>BASIC RESEARCH</b>

## 10 Reasons Why AFRL Is The Right Partner!



# Our Partnership Ecosystem





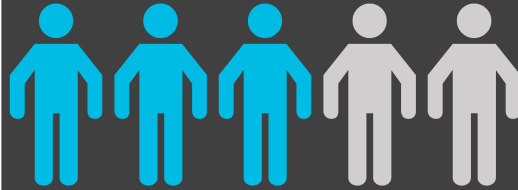
# Our People

## TYPES OF EMPLOYEES



- Over 1,000** Military (USAF/USSF)
- Over 5,500** Civilians
- Over 5,000** Contracted Positions

## SCIENTISTS & ENGINEERS (S&Es)



**Three** out of every **five** government civilians are S&Es

## EDUCATION



**~80%** of S&Es hold a Master's degree or higher  
**~36%** hold a Ph.D.

## BUSINESS PROFESSIONALS



Program Management, Finance, Contracting, Medical, Acquisition, Security, Information Technology, and many more...



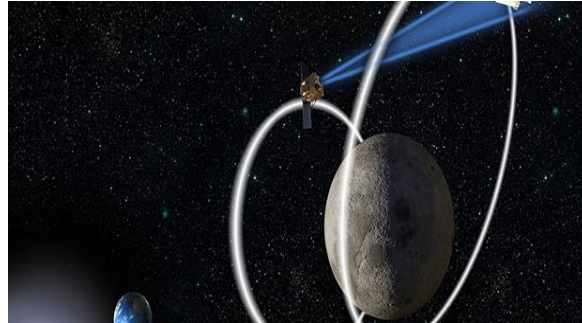
# What You Will Discover Here In New Mexico



## Directed Energy Directorate (RD)

Directed Energy Directorate, harnesses the power of the electromagnetic spectrum to enable Airmen to effectively and affordably strike critical targets at the speed of light.

<https://www.afrl.af.mil/RD/>



## Space Vehicles Directorate (RV)

Space Vehicles Directorate, the Air Force's center of excellence for space research, develops and transitions technologies that provide space-based capabilities to the nation.

<https://www.afrl.af.mil/RV/>



## Student and Faculty Opportunities

Summer programs, internships and fellowships give you the opportunity to explore career paths and make lasting connections in science and technology.

<https://afresearchlab.com/careers-and-opportunities/students-and-faculty/>



## Career Opportunities

Great ideas have taken flight thanks to bright minds at the AFRL. Where can you start innovating? Explore the many paths to employment with AFRL.

<https://afresearchlab.com/careers-and-opportunities/career-employment/>

# Directed Energy Directorate Evolving Technologies

## Laser Systems



Laser Sources,  
Beam Control & Atmospheric Compensation,  
LS Technologies, Integration & Demonstration  
Laser System Effects, Modeling & Sim

**Vision**  
*Innovating the Fight  
at the Speed of Light*

**Mission**  
Leading the AF & Nation in  
Directed Energy Weapons  
science, technology, R&D

## Directed Energy and Electro-Optics for Space Superiority (DEEOSS)



EO Phenomenology & Imaging of DEEOSS,  
Space BMC2 & Protection, Atmospheric Characterization &  
Compensation

## High Power Electromagnetics



Non-lethal counter-electronics technology  
(disrupt critical electronic systems),  
Advanced pulsed power sources,  
High power electromagnetic effects &  
predictive modeling

AFRL  
Directed  
Energy  
Directorate

278 Gov/Mil S&Es  
496 On-site Contractors

4,325 Acres  
861,450 sq. ft. Labs &  
Facilities

## Weapons Modeling Sim & Analysis



Applied Weapon Engagement,  
Mission Analysis & Wargaming  
Advanced Modeling & Simulation Development



# AFRL Space Vehicles Directorate Evolving Ecosystem

## Diverse Space Activities ... Changing At An Increasing Pace



Scientific Experimentation  
Incremental Terrestrial Use  
(Satellite Comm/TV, GPS)



Political/  
Military Power



'50s-'70s

'80s-'00s

'10s-'20s

2030+

Commercial Space  
Industry & Economy



Future Space  
Environment



# AFRL

## SCHOLARS PROGRAM



### **Build Your Resume**

Add marketable skills to your resume with enriching professional development activities.



### **Make Some Money**

This a paid internship! Rates based on academic level and GS-schedule for the Rest of the United States (RUS), exclusions apply.



### **Learn from the Best**

Learn from industry leaders in science and engineering with access to state of the art facilities and labs.



### **Innovate with Impact**

Perform cutting-edge research with real-world impact that advances the mission of the Department of Defense.



### **Make Connections**

Grow professional connections with AFRL leadership, mentors, and peers from across the country.



**AFRL**  
SCHOLARS PROGRAM  
**APPLICATIONS  
ARE OPEN**

**APPLY TODAY!**

Applications close 10 January 2024



## APPLICATION CHECKLIST



- Create an account or log in at [afrlscholars.usra.edu/students](https://afrlscholars.usra.edu/students)
- Complete basic contact and demographic information
- Request letters of recommendation (optional)
- Upload a current resume
- Answer the essay questions
- Include a transcript
- Select up to three topics of interest
- Review and certify the application



<https://afrlscholars.usra.edu/>

# INTERNSHIPS



The Pathways Program offers federal internship and employment opportunities for current students, recent graduates and those with an advanced degree. There are three different paths available: Internship Program, Recent Grads Program & Presidential Management Fellows (PMF) Program. [DEADLINE: Varies](#)



SOCHE strives to find internships for students at all academic levels including high school, undergraduate, graduate, and post-doctorate. [DEADLINE: Open](#)



The AFRL STEM Workforce Development Program Portfolio is administered by Universities Space Research Association (USRA). USRA's team is dedicated to ensuring quality programs are offered at all supported sites and that scholars and mentors have a fulfilling, worthwhile experience that promotes interest and career development in science, technology, engineering, and mathematics. [DEADLINE: JAN 10<sup>th</sup>](#)



The Premier College Intern Program is designed to prepare participants for future mission critical and specialty positions in the Air Force through 10-12 week paid summer internships. Interns will complete special projects using cutting edge technology, while under the mentorship of senior managers. [DEADLINE: DEC](#)

# DOD SMART PROGRAM



**SMART**  
SCIENCE, MATHEMATICS,  
AND RESEARCH FOR  
TRANSFORMATION  
PART OF THE NATIONAL  
DEFENSE EDUCATION PROGRAM

smartscholarship.org

## SMART

### SCHOLARSHIP-FOR-SERVICE PROGRAM

Defense Created by Scientists and Engineers

## BENEFITS FOR SMART SCHOLARS

The Science, Mathematics, and Research for Transformation (SMART) Scholarship-for-Service Program, funded by the Department of Defense (DoD), is a combined educational and workforce development opportunity for STEM students.



### Full Tuition

Full tuition, annual stipends, and book/health allowances to students pursuing STEM degrees.



### Internships

Receive invaluable experience during summer internships with the Department of Defense.



### Career

Pursue full-time employment with the Department of Defense after graduation.

## ELIGIBILITY AND PROGRAM REQUIREMENTS



U.S.  
Citizen



Minimum 3.0  
GPA



Degree in  
STEM



18 Years  
or Older



Minimum  
1 Year



Obtain Security  
Clearance



Complete  
Internship



Accept DoD  
Employment



Jennifer Aneke

"I've been able to apply my technical expertise to a variety of areas that aid the Navy's Mission. The SMART Scholarship opened up many doors for professional growth and the ability to better serve our country."



SMART.DoD.Scholarship



@SMART\_DoD



SMART Scholarship



SMART.DoD

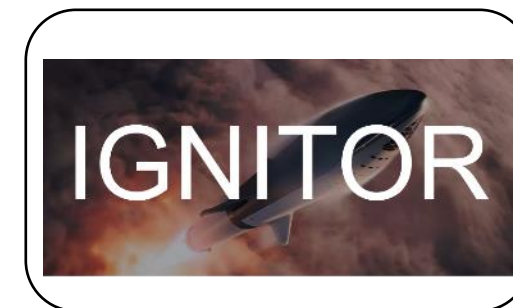
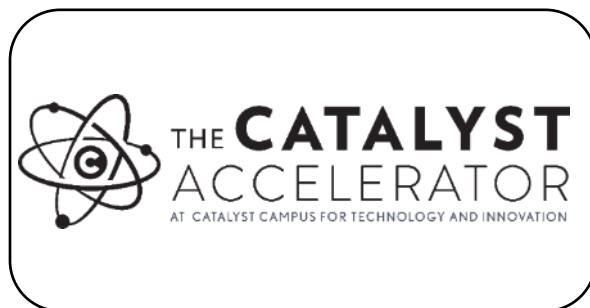
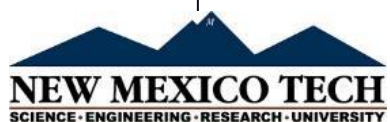


DoD SMART Scholarship

# INTERNSHIPS

- AFRL Minority Leaders Program (MLP) initiated in 2005
- MLP evolved into the AFRL Minority Leaders – Research Collaboration Program (ML-RCP) in 2013 – 2021 (16 year effort in total)
  - **ML-RCP remains largest HBCU/MSI research initiative in USAF**
  - Single largest endeavor with HBCUs/MSIs funded by the Air Force
  - 36 university participants (HBCUs, MSIs, and other IHEs)
    - Employs a mentor/protégé format through the research collaborations
  - Over 700 students and 200 professors participate to date
  - Energizes students across the U.S. to pursue to STEM degrees
  - Students and faculty have access to unique lab facilities and world class experts
  - Highly structured summer Research activities
    - 197 Internships from 2013-2021





**Our Regional Partnerships Ecosystem  
Your Partnerships Ecosystem**



# **HYPERSPACE** CHALLENGE

<https://hyperspacechallenge.com/>

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## **HYPERSPACE CHALLENGE:**

Business Accelerator Between The Government, Startup, And University Communities To Accelerate Innovation and Opportunities/Contracts

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## **SIGN UP (JULY-AUG):**

Webinar Series to Start Conversation About Your Company's or University Team's Technology

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## **SUBMISSIONS (AUG-SEPT):**

Attend A Series Of Webinars AND Submit Application

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## **HYPERSPACE ACCELERATOR (NOVEMBER):**

Invited Entities Will Come Together Develop Concepts And Explore Opportunities For Contracting/Acquisition





**CTA**



**MTA**



**PATENT**



**CRADA**



**EPA**



**ITA**

# Unfunded Agreements

<https://www.aft3.af.mil/>

# Thank you!

- SARA TELANO:  
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- VALERIE KNIGHT:  
[VALERIE.KNIGHT@US.AF.MIL](mailto:VALERIE.KNIGHT@US.AF.MIL)

TECH ENGAGEMENT OFFICE (AFRL/RDOX)



Collaborative R&D

Technology Licensing

Educational Partnerships

Regional Hub Network

K-12 STEM

S&T Front Door

Internships, Faculty Sharing

**TOGETHER,  
WE WIN.**



Small Business Funding

Venture Matching

Rapid Acquisitions

Challenge Workshops

Priming Emerging Markets

End-User Collider Events

Innovation Inject, S&T to Operations

**PARTNER WITH US. ONE TEAM. ONE FIGHT.**