



***European Office of Aerospace Research and  
Development (EOARD)***

**Aeronautical Sciences  
Program**



**July 2009**



**Dr. Surya Surampudi**  
**Chief, Aeronautical Sciences**  
**AFOSR/EOARD**  
**Air Force Research Laboratory**



# Overview



- **Purpose**
- **Background**
- **EOARD Programs**
  - **Conference Support**
  - **Research Projects**
  - **Window-on-Science**





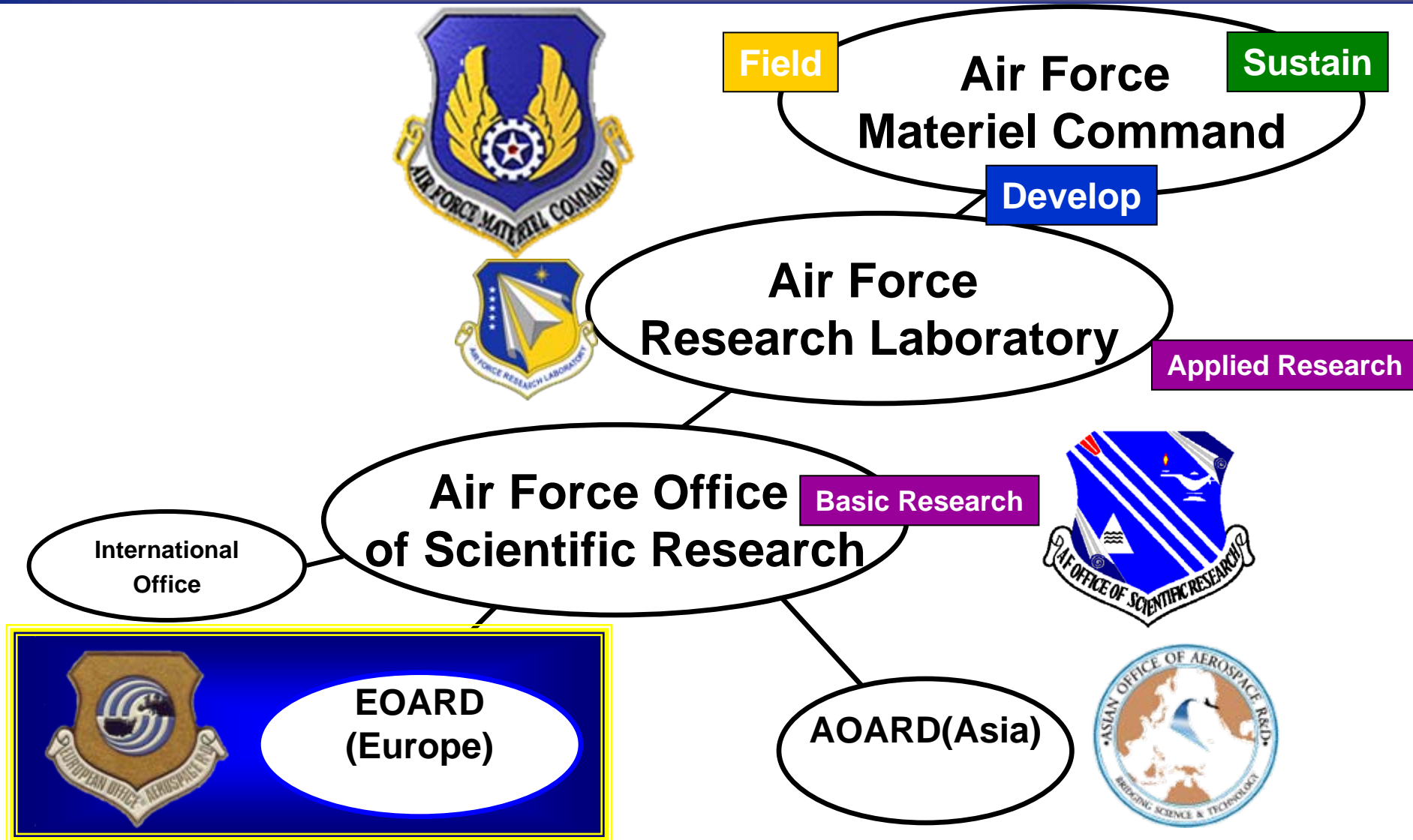
# EOARD Purpose



- **Promote Basic Research in Europe through grants and contracts to universities and Research Organizations**
- **Sponsor small conferences and focussed workshops providing opportunities for technical experts to get together and exchange new ideas**
- **Organize European technical expert visits to USA federal labs or universities closer to federal labs to discuss topics of mutual interest in Basic Research**

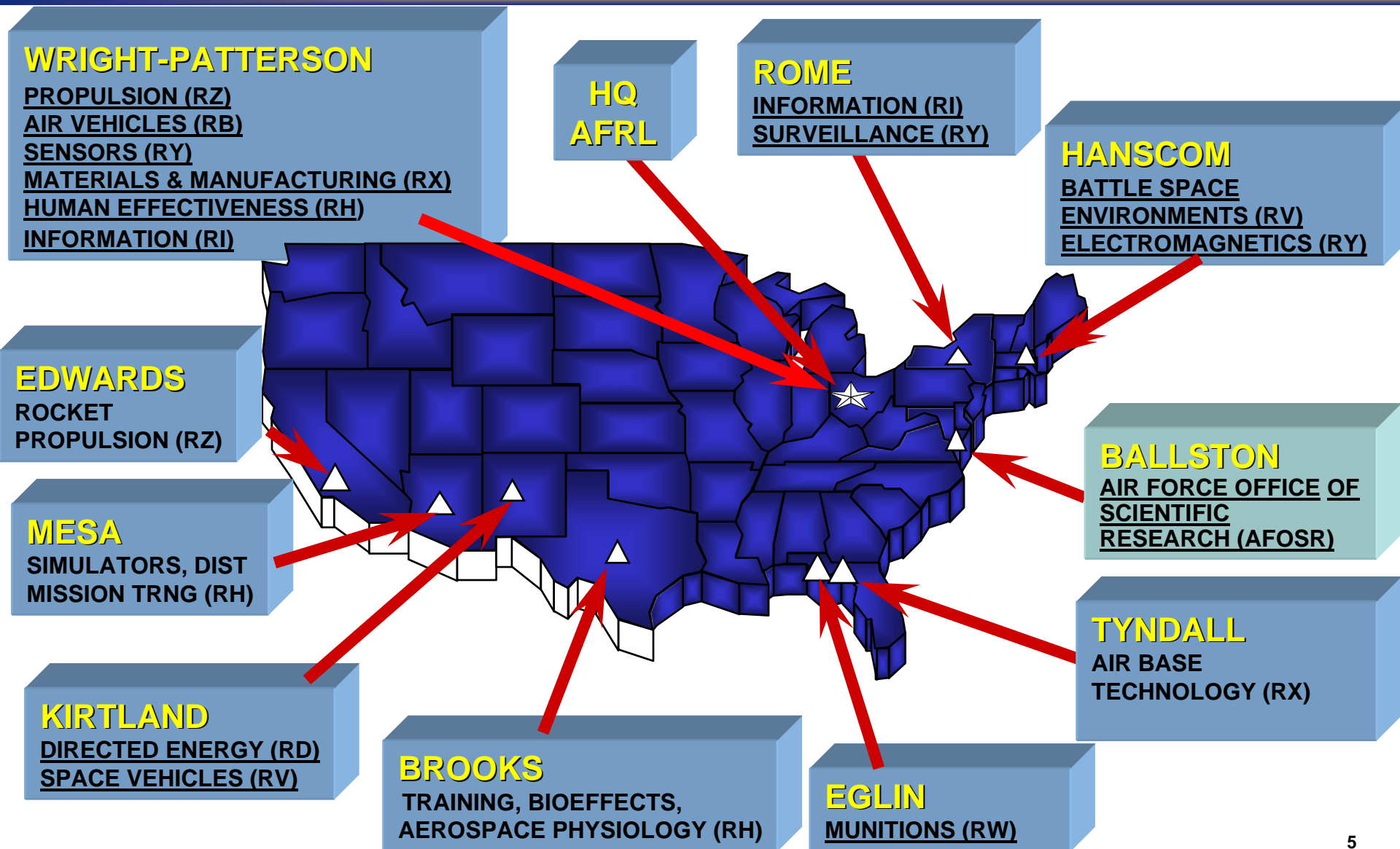


# Organization Chart





# AFOSR Within the AF Research Lab





# AFOSR Supports Basic Research



Arlington

**AFOSR**



**Basic Research  
Funding**

Tokyo

Asian Office of Aerospace  
Research and Development

London

European Office of Aerospace  
Research and Development

## ***Foster Revolutionary Basic Research***

728 Research grants at 211 universities

194 Research projects at AFRL

133 STTR contracts

## ***Build Relationships***

79 Summer Faculty

40 Postdocs at AFRL

37 Personnel exchanges

264 Short-term foreign visitors

58 Technical workshops

205 Conferences sponsored

**Creating Revolutionary Air Force Technology Breakthroughs**

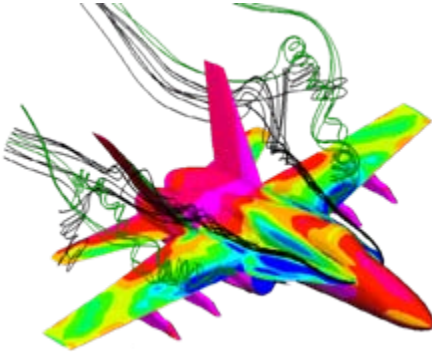




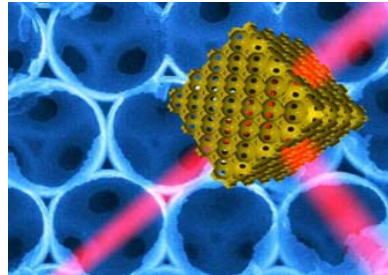
# AFOSR Basic Research Areas



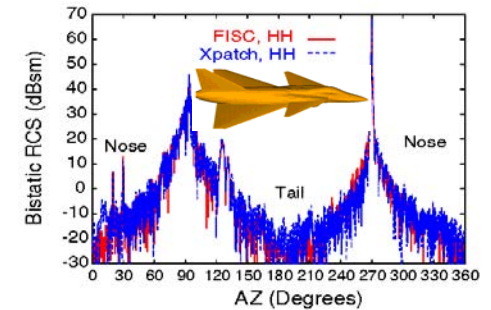
## ***Aerospace & Materials Sciences***



## ***Physics & Electronics***



## ***Mathematics Information & Life Sciences***



## **Sub-thrusts**

- Structural Mechanics
- Materials
- Chemistry
- Fluid Mechanics
- Propulsion

- Physics
- Electronics
- Space Sciences
- Applied Math

- Info Sciences
- Human Cognition
- Mathematics
- Bio Sciences

## **Areas of Enhanced Emphasis**

- Complex Systems
- Robust Decision Making
- Energy & Thermal management
- Space Situational Awareness



# AFOSR 2009 BROAD AGENCY ANNOUNCEMENT AEROSPACE AND MATERIAL SCIENCES



- Mechanics of Multifunctional Materials & Microsystems
- Structural Mechanics
- Surface and Interfacial Science
- Organic Materials Chemistry
- Theoretical Chemistry
- Molecular Dynamics
- High Temperature Aerospace Materials
- Low Density Aerospace Composites
- Hypersonics and Turbulence
- Flow Control and Aeroelasticity
- Space Power and Propulsion
- Combustion and Diagnostics





# AFOSR 2008 BROAD AGENCY ANNOUNCEMENT PHYSICS AND ELECTRONICS



- Electro Energetic Physics
- Atomic and Molecular Physics
- Physical Mathematics and Applied Analysis
- Electromagnetics
- Laser and Optical Physics
- Remote Sensing and Imaging Physics
- Space Sciences
- Quantum Electronic Solids
- Adaptive Multi-Mode Sensing and Ultra-High Speed Electronics
- Semiconductor and Electromagnetic Materials
- Optoelectronics: Components, Integration and Information Processing and Storage
- Sensing, Surveillance, Navigation



# AFOSR 2008 BROAD AGENCY ANNOUNCEMENT

## Mathematics, Information and Life Sciences



- Bioenergy
- Complex Networks
- Computational Mathematics
- Information Fusion and Distributed Intelligence
- Dynamics and Control
- Mathematical Modeling of Cognition and Decision
- Natural Materials and Systems
- Optimization and Discrete Mathematics
- Sensory Information Systems
- Collective Behavior and Socio-Cultural Modeling
- Systems and Software
- Information Operations and Security



# EOARD Staffing



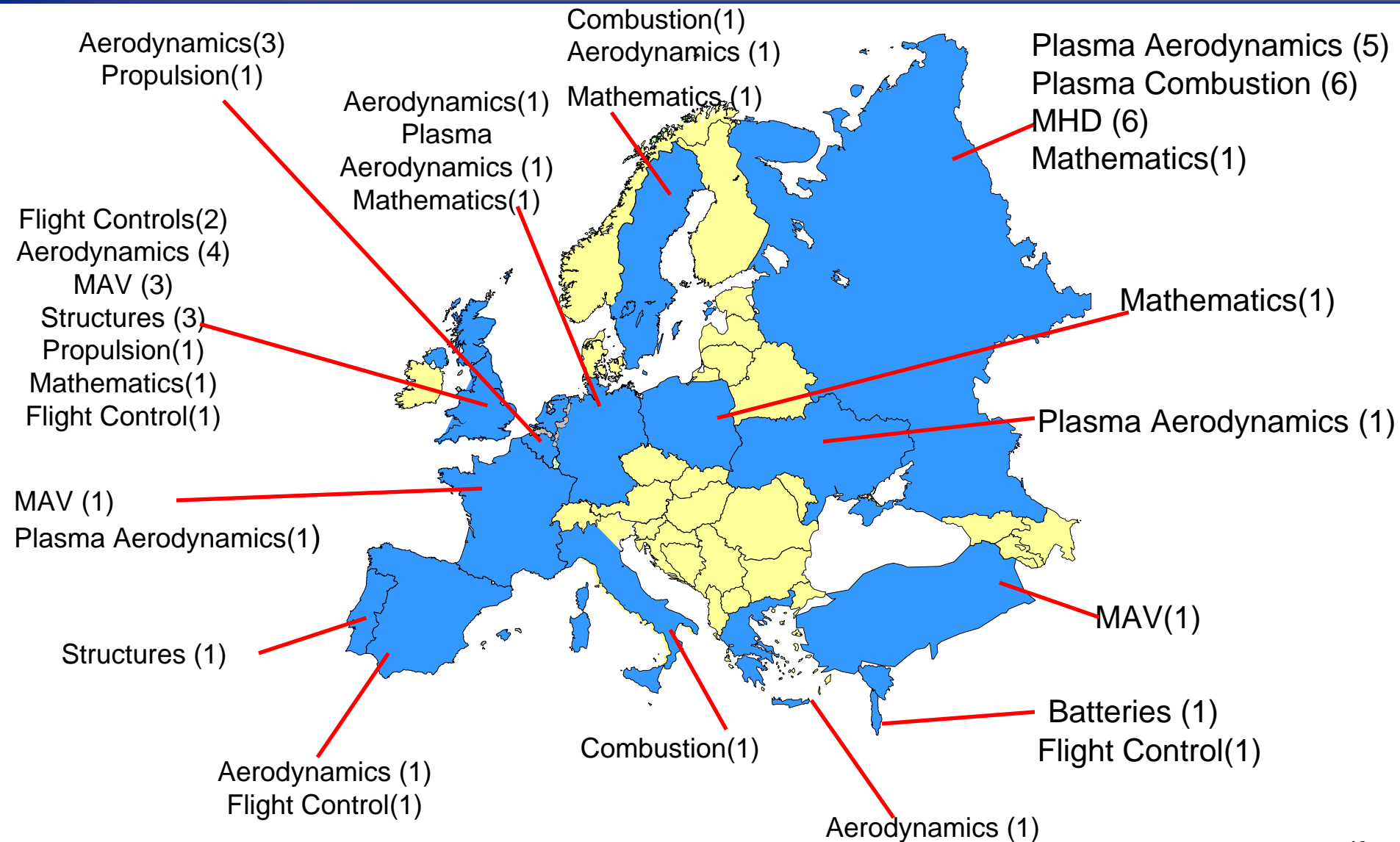
## 16 Personnel

- **8 Management/Support**
- **8 Program Managers**
  - RF Technology
  - Lasers and Electro-optics
  - Aeronautical Sciences
  - Information Technology
  - Materials/Nanotechnology
  - Life Sciences/Human Effectiveness
  - Space Technology
  - Physics





# EOARD Aeronautics Portfolio





# Conference Support Program



- Designed to promote conferences and workshops focused on topics of interest to US and European Scientists
- Facilitate attendance/access by US researchers
  - Expand availability of proceedings to US (DTIC)
- Examine joint opportunity with Navy and/or Army
- Typically <\$5000 for conference support
  - Proceedings and complimentary registrations to EOARD
    - Support posted to [AFOSR Events and Conferences](#) web page
  - International visibility and access
- Focus on smaller workshops
- Approximately 80 conferences supported each year

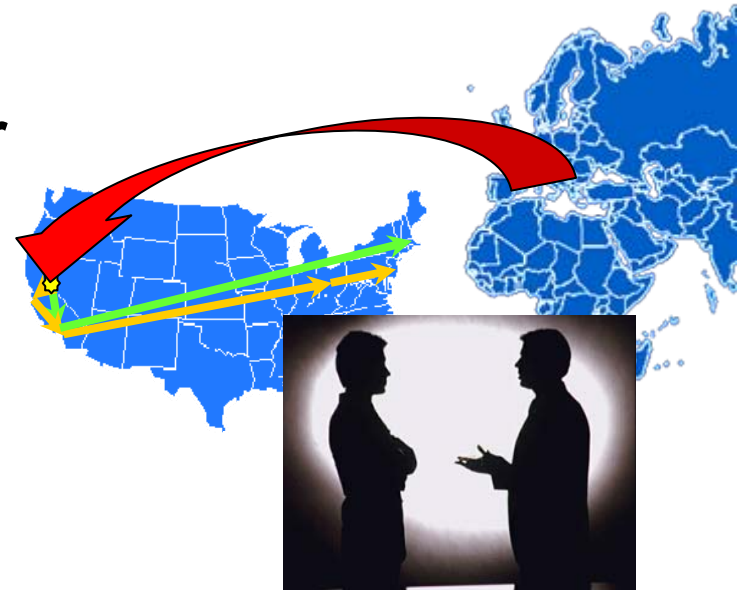




# Window on Science



- **Selected scientists brief their research to U.S. researchers supporting AF needs**
- **Often used to gauge quality of a scientist's work**
  - **May lead to further investment (contracts/confs)**
- **Covers cost of transportation, lodging, conference, etc.**
- **Approximately 200 trips / year**
  - **Target multiple sites/organizations per visit**







# Research Projects



- Small research projects at universities/institutes
- Proposals in response to AFOSR Broad Agency Announcement
  - Fixed-price contracts or grants
    - Range: \$1,000-\$600,000
    - 1 year/\$40,000 is norm
- FSU Access



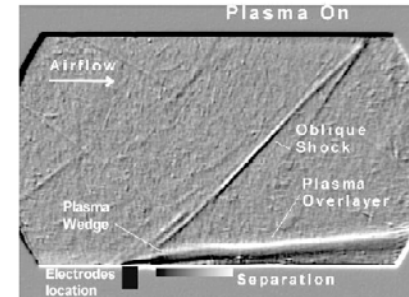
International Science and Technology Center



Science and Technology Center of Ukraine



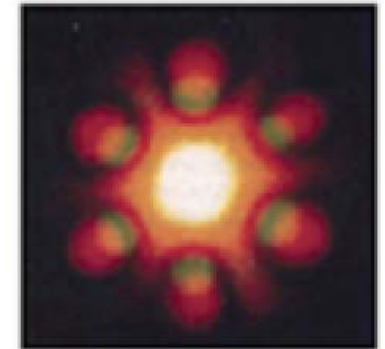
US Civilian Research and Development Foundation



Shock wave position control for hypersonic vehicles



Hall effect thrusters for space applications



Fiber lasers



# Contact Information



**Dr. Surya Surampudi**  
**Chief, Aeronautical Sciences**  
**European Office of Aerospace R & D (EOARD)**  
**86, Blehniem Crescent**  
**Ruislip HA4 7HB**  
**United Kingdom**

**Telephone: (44)-1895616021**

**Fax: (44)-1895616012**

**Email: [surya.surampudi@london.af.mil](mailto:surya.surampudi@london.af.mil)**

**Website: <http://www.london.af.mil>**



# EOARD Summary



- **Small office**
  - BIG operation!
- **Direct access to world-class expertise and technologies**
  - Emphasis on BASIC RESEARCH
- **Streamlined processes**
- **International focus**
- **Supporting entire AFRL enterprise**



<http://www.london.af.mil>