DC Office for Research Advancement

Developing and Submitting a Successful Science/Engineering Grant Application to Federal Mission Agencies
(with some insights for NSF and NIH)

17 Sep 2014

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8 years at USC
40 years in Dept of Defense S&T at NRL/ONR/OSD
The mazes were too easy, so now they have me running through bureaucracies and looking for grants.
USC DC Research Advancement Office
Services

Research Funding
Research initiative alerts
Collaborations across schools, other institutions
Federal funding agency advocacy
Strategically targeted activities
Proposal preparation - editorial and scientific contributions
Repository with Mission Agency Program Summary (MAPS) resources
Searchable MAPS Program/Program Officer database
http://web-app.usc.edu/web/ra_maps/search/

Visibility/Prestige
(Inter)national conferences / workshops
Strategic partnerships
Advisory/planning committees

Faculty Development
Grant-preparation workshops
Arrange seminar/colloquia – staff from DC Office, federal funding agencies
Faculty recruitment
Presentation Outline

Introduction to (selected) federal agency science and engineering funding

Perspectives on various agency programs

National Science Foundation (NSF)

1. Department of Defense (DOD)
2. Intel Community (IC)
3. Department of Homeland Security (DHS)
4. Department of Energy (DOE)
5. National Aeronautics and Space Agency (NASA)
6. National Institute of Standards and Technology (NIST)
7. US Department of Agriculture (USDA)
8. US Department of Education (ED)
9. Environmental Protection Agency (EPA)
10. National Oceanic and Atmospheric Agency (NOAA)
11. Department of Transportation (DOT)

National Institutes of Health (NIH)

Suggestions for selling your ideas to program officers

Resources
Federal “Basic and Applied Research” Funding

2015 does not show changes Congress may make in the appropriations bills.
National Research Priorities
(e.g., where will “new” Federal money preferentially go - at least under Obama)
http://www.whitehouse.gov/sites/default/files/microsites/ostp/fy_15 memo_m-13-16.pdf

National Nanotechnology Initiative
www.nano.gov

National Information Technology, Research, Development
www.nitrd.gov/

Big (and open) Data

Trustworthy Cyberspace
www.whitehouse.gov/blog/2011/12/06/federal-cybersecurity-rd-strategic-plan-released

Global Climate Change
www.globalchange.gov/

Renewable/Sustainable/Clean Energy
www.whitehouse.gov/energy

STEM Education
www.stemedcoalition.org/ Advanced

Advanced Manufacturing / Innovation
www.manufacturing.gov/

Materials Genome
www.whitehouse.gov/blog/2011/06/24/materials-genome-initiative-renaissance-american-manufacturing

BioEconomy - Synthetic Biology
www.whitehouse.gov/administration/eop/ostp/library/bioeconomy

Neuroscience (including the BRAIN Initiative)
www.whitehouse.gov/the-press-office/2013/04/02/fact-sheet-brain-initiative

Plasmonics and Photonics
www.whitehouse.gov/sites/default/files/microsites/ostp/NSTC/ftac-op_pssc_20140417.pdf

Social and Behavioral Sciences
workshop??
Agency Science and Technology (S&T) Extramural Program Focus

National Science Foundation (NSF)
The National Science Foundation (NSF) is the primary Federal agency supporting research at the frontiers of knowledge, across all fields of science and engineering (S&E) and all levels of S&E education.

National Institutes of Health (NIH, HHS)
Fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce the burdens of illness and disability.

Department of Defense (DOD)
All scientific study and experimentation directed toward increasing fundamental knowledge and understanding in those fields related to long-term national security needs.

Department of Homeland Security (DHS)
Produce revolutionary changes in technologies and capabilities for homeland security.

Intel Communities (IC)

Department of Energy (DOE)
- Change the landscape of energy demand and supply
- Climate Change: Position U.S. to lead on climate change policy, technology, and science

National Aeronautics and Space Administration (NASA)
- Expand scientific understanding of the Earth and the universe in which we live.
- Advance aeronautics research for societal benefit.

National Institute of Food and Agriculture (NIFA, USDA)
Solve problems critical to making a plant, animal, ecosystem, food system, community, or marketplace work

National Institute of Standards and Technology (NIST, DOC)
Promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology. Also to play a major role in the Advanced Manufacturing Initiative

Department of Transportation (DOT)
Highway, intelligent transportation and aviation

National Oceanic and Atmospheric Administration (NOAA, DOC)
Conducts research in three major areas: weather and air quality, climate, and ocean and coastal resources.

Department of Education (DoEd or ED)
Research that contributes to school readiness and improved academic achievement.

Environmental Protection Agency (EPA)
Provide the solutions to meet today’s complex environmental and human health challenges.
NSF
Principal S&E Funding Divisions
http://www.nsf.gov/staff/orglist.jsp

Directorate for Mathematical & Physical Sciences
Astronomical Sciences (AST)
Chemistry (CHE)
Materials Research (DMR)
Mathematical Sciences (DMS)
Physics (PHY)

Directorate for Engineering
Chemical, Bioengineering Environmental & Transport (CBET)
Civil, Mechanical & Manufacturing Innovation (CMMI)
Electrical Communications & Cyber Systems (ECCS)
Engineering Education & Centers (EEC)
Industrial Innovation and Partnerships (IIP)
Emerging Frontiers in Research & Innovation (EFRI)

Directorate for Biological Sciences
Biological Infrastructure (DBI)
Environmental Biology (DEB)
Integrative Organismal Systems (IOS)
Molecular & Cellular Biosciences (MCB)
Office of Emerging Frontiers (EF)

Directorate for Computer & Information Science & Engn
Advanced Cyberinfrastructure (ACI)
Computer & Network Systems (CNS)
Computing & Communication Foundations (CCF)
Information & Intelligent Systems (IIS)

Directorate for Geosciences
Atmospheric & Geospace Sciences (AGS)
Earth Sciences (EAR)
Ocean Sciences (OCE)
Polar Programs (PLR)

Directorate for Education & Human Resources (EHR)
Graduate Education (DGE)
Human Resource Development (HRD)
Research on Learning in Formal & Informal Settings (DRL)
Undergraduate Education (DUE)

Directorate for Social, Behavioral, & Economic Sciences
Behavioral & Cognitive Sciences (BCS)
Social & Economic Sciences (SES)
National Center for Science and Engineering Statistics (NCSES)
Multidisciplinary Activities (SMA)

Office of the Director
International and Integrative Activities (IIA)
What: Announcements
Proposals may be submitted in response to the various funding opportunities that are announced by NSF. These funding opportunities generally fall into three categories:
- program descriptions (PDXXXX, continuing core programs)
- program announcements (NSF XX-YYY, generally special topic and constrained lifetime)
- center solicitations (also NSF XX-YYY, but are interdisciplinary/cross cutting)
Subscribe to e-alerts for NSF opportunities/events at https://public.govdelivery.com/accounts/USNSF/subscriber/new?pop=t&qsp=823

When: See NSF announcements - almost all opportunities have specific deadlines

Where: NSF Fastlane (https://www.fastlane.nsf.gov/)

How:
NSF Days - for information about proposing to NSF
http://www.nsf.gov/events/event_group.jsp?group_id=20013
The NSF Days workshop is primarily designed for researchers and educators less experienced in proposing to the NSF. The workshop covers the NSF proposal and merit review process and the NSF programs that cut across disciplines.

Resources:
USC Center-of-Excellence-in-Research Workshops by Phil Taylor and/or Paul Ronney
NSF Publication: A Guide for Proposal Writing
Grant Proposal Guide (GPG), February 2014
NSF Prospective New Awardee Guide, February 2014
NSF Days - MAPS has some past NSF Days presentations
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Revised 3/10/2014
DOD RDT&E Taxonomy - Primer

Science and Technology ($11.5B in FY15)

**BA1 6.1 Basic Research** (TRL 0-1) knowledge of fundamental aspects of phenomena – largely use inspired

**BA2 6.2 Appl Research** (TRL 2-3) determine means by which a specific need may be met

**BA3 6.3 Adv Technol Development** development / integration of hardware for field expt

Development ($52B in FY15)

**BA4 6.4 Adv Component Devel and Prototype** evaluate integrated technology in realistic environment

**BA5 6.5 System Devel and Demonstration** for projects without approval for full rate production

**BA6 6.6 RDT&E Management Support** program managers, ranges, test facilities,…

**BA7 6.7 Operational Sys Development** support of development acquisition programs or upgrades

Congressionally Directed Medical Research (CDMRP)

SBIR / STTR – 2.5% / 0.3% tax on R&D funding

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DOD Basic Research - Principal Funding Offices
http://www.acq.osd.mil/rd/basic_research/program_info/funding.html

Service Research Offices (OXR’s)
- Office of Naval Research (ONR)  www.onr.navy.mil

Defense Advanced Research Projects Agency (DARPA)
- Defense Science Office (DSO)  www.darpa.mil/Our_Work/DSO
- Biological Technologies Office (BTO)  www.darpa.mil/Our_Work/BTO
- Information Innovation Office (I2O)  www.darpa.mil/Our_Work/I2O
- Strategic Technology Office (STO)  www.darpa.mil/Our_Work/STO
- Tactical Technology Office (TTO)  www.darpa.mil/Our_Work/TTO

Defense Threat Reduction Agency (DTRA)
- Basic and Applied Research Directorate (BA)  www.dtra.mil
- Chemical and Biological Technologies Directorate (CB)

Army Medical Research and Materiel Command
- DMRDP (Defense Medical Research and Development Program)  dmrdp.dhhq.health.mil/home.aspx
- CDMRP (Congressional adds, fully open competition)  cdmrp.army.mil
- TATRC (Congressional adds, special interest)  www.tatrc.org

Army Research Inst for Behavioral & Social Sci
- CDMRP  Congressionally Directed Medical Research Program
- TATRC  Telemedicine and Advanced Technology Research Center
Service (Air Force, Army, Naval) Basic Research Funding Opportunities

What: Largest source of DOD funding for University basic research
Each Service has specifically identified program interests (see solicitations, websites)
Majority invested in single investigator efforts (in contrast to MURI program)
OXR Broad Area Announcements (BAA) are relatively generic
Each PO has focused interests, linking science with some military need

**OXR Program Officer (PO) key to success**

How Much: typically $100 – 200K/yr for three years (with continuation possible)
OXR programs typically have ~20% turnover each year

When: Initial white paper useful (usually required)
Proposals to generic BAAs nominally anytime, but spring/early summer to be timely
Specific due dates for special program announcements
Most funding decisions processed in fall, early winter – after appropriation bill

Where: See Agency websites / BAAs  Mix of paper and electronic (grants.gov)

DRS - the Defense Research Sciences is a budget line for DOD
MURI - Multidisciplinary University Research Initiative
OXR - umbrella acronym for ONR, AFOSR, ARO
Example of Listing in an Academic Taxonomy
Available in MAPS Defense Charts

Program Officers/Programs in Physics

**Physics - ARO**

- Atomic and Molecular Physics
  - Paul Baker
  - 919 549 4202
  - paul.m.baker4.civ@mail.mil

- Condensed Matter Physics
  - Marc Ulrich
  - 919 549 4319
  - marc.d.ulrich.civ@mail.mil

- Optics & Fields
  - Richard Hammond
  - 919 549 4313
  - richard.t.hammond10.civ@mail.mil

- Quantum Information Science
  - TR Govindan
  - 919 549 4236
  - t.r.govindan.civ@mail.mil

**Physics - AFOSR**

- Atomic and Molecular Physics
  - Tatjana Curcic
  - 703 696 6204
  - tatjana.curcic@afosr.af.mil

- Biophysics
  - William (Pat) Roach
  - 703 696 8450
  - william.roach.4@us.af.mil

- Electromagnetics
  - Arje Nachman
  - 703 696 8427
  - arje.nachman@afosr.af.mil

- Laser and Optical Physics
  - Howard Schlossberg
  - 703 696 7549
  - howard.schlossberg@afosr.af.mil

- Plasma & Electro-Energetic Phys
  - John Luginsland
  - 703 588 1775
  - john.lugisland@afosr.af.mil

- Quantum Electronic Solids
  - Harold Weinstock
  - 703 696 8572
  - harold.weinstock@afosr.af.mil

- Remote Sensing & Imaging Phys
  - Kent Miller
  - 703 696 8573
  - kent.miller@afosr.af.mil

- Ultra-short Pulse Laser-Matter
  - Riq Parra
  - 703 696 8571
  - enrique.parra@afosr.af.mil

**Physics - ONR**

- Atomic,Molec, Quantum Physics
  - Charles Clark
  - 703 696 5267
  - charles.clark3@navy.mil

- Chaos/Non-linear Physics
  - Michael Shlesinger
  - 703 696 5339
  - mike.shlesinger@navy.mil

- Directed Energy
  - Quentin Saulter
  - 703 696 2594
  - quentin.saulter@navy.mil

- RF Superconducting Technol
  - Deborah van Vechten
  - 703 696 4219
  - deborah.vanvechten@navy.mil

**Physical Sciences – DARPA DSO**

- Optoelectronics, Quantum Info
  - Matthew Goodman
  - 571 218 4681
  - matthew.goodman@darpa.mil

- Photonics
  - Prem Kumar
  - 703 526 2709
  - prem.kumar@darpa.mil
Multidisciplinary University Research Initiatives (MURI)

What: Supports University teams that involve more than one traditional science/engineering discipline
Topics selected from OXR Program Officer suggestions
~25 new topics announced annually by DOD
For prior topics and University awardees ask DC Office

How Much:
~$1-2.5M/yr for three years + two additional option years

When:
Announcement 19 Aug 2013
White paper (strongly encouraged, not required) 15 Oct 2013
Full proposal 16 Dec 2013

Where: See ARO / AFOSR / ONR websites for the MURI BAA

USC MURI awardees
2006 Nealson AFOSR - Bioengineered Fuel Cells
2008 USC supporting Institution in four different MURI awards
2009 Sukhatme ONR – Adaptive Networks for Threat and Intrusion Detection or Termination
     USC supporting institution in one other MURI award
2010 USC supporting institution in four other MURI awards
2011 Tambe ARO - Scalable, Stochastic and Spatiotemporal Game Theory for Real World Adversarial Behavior
     Lidar ARO - Control of Quantum Systems
Defense University Research Instrumentation Program (DURIP)

**What:** Acquisition of major equipment to augment current or develop new research capabilities to support research in the technical areas of interest to the DoD

Provide equipment to conduct research and to educate new scientists/engineers

Matching funds not required, but is helpful (especially for larger grants)

DOD research grant not required, but is very helpful

OXR program officer support very, very helpful

**How Much:** >$50K, <$1.5 M per award (149 awards averaging $270K in FY2014)

Total funds fluctuate somewhat depending on MURI selections

**When:** In past typically due in late Aug / early Sept (20 Oct 2013 for FY14)

**Where:** ARO / AFOSR / ONR webpages for the DURIP BAA

USC Awardees

**2009**

Langdon  High-Pressure Torsion Research (ARO)

Madhukar  Novel PV Solar Cell Synthesis & Characterization (AFOSR)

Schaal  Humanoid Robotic Research (ARO)

**2010**

Armani  Characterize Micro-Nano Devices for Photonics/BioDetection (ONR)

Madhukar  In-situ Characterization of Highly Heterogeneous Nanostructures (AFOSR)

**2011**

Christe  High energy density materials (ONR)

Molisch  Distributed electronic warfare applications (ONR)

Debevec  Improve the photorealism of simulations to enhance training (AFOSR)

**2012**

Cronin  Atomic Layer Deposition System (ONR)

Narayan  A Versatile Thin-Film Deposition System for Advanced Power Sources Research (ARO)

Sukhatme  Robotic Platform for Study of Human-Robot Interaction, Motor Control, Perception (ONR)

Zhou  Maskless Photolithography for Nanoelectronic Device Prototyping and Fabrication (ONR)

**2013**

Malmstadt  Instruments for High-throughput analysis of oxidative cell membrane damage (ONR)

Vashishta  Computing platform for simulation and visualization of insensitive nanoenergetic (ONR)

Hodge  Instrumentation for TEM sample prep (ONR)

**2014**

Armani  Laser for non-linear optics and biophotonics (ONR)

Egolfoupoulos  Hi-resol diagnostics for velocity and scalar field study in turbulent reacting flows (AFOSR)
Defense Medical Research and Development Program (DMRDP)

What: The Defense Medical Research and Development Program (DMRDP), part of the Defense Health Program (DHP), contributes to the Defense Department’s overall investment for medical research and development (R&D) with Research, Development, Testing, and Development (RDT&E) dollars.

The objectives of the DMRDP are:
1. To discover and explore innovative approaches to protect, support, and advance the health and welfare of military personnel, families, and communities;
2. To accelerate the transition of medical technologies into deployed products; and
3. To accelerate the translation of advances in knowledge into new standards of care for injury prevention, treatment of casualties, rehabilitation, and training systems that can be applied in theater or in the clinical facilities of the Military Health System.

The DMRDP has six major program areas:
• Medical Training and Health Information Sciences
• Military Infectious Diseases
• Military Operational Medicine
• Combat Casualty Care
• Radiation Health Effects
• Clinical and Rehabilitative Medicine

Each major research program area is managed by a committee, called a Joint Program Committee or JPC, which consists of DoD and non-DoD medical and military technical experts. These experts work through a coordinated effort to translate guidance into research and development needs.

When: See program announcements

Where: (as recent examples)
W81XWH-14-JPC1-VTA Virtual Tissue Advancement Research
W81XWH-14-DMRDP-CRMRP-NMSIRA Neuromusculoskeletal Injuries Research Award
W81XWH-14-DMRDP-CRMRP-RMCTA Regenerative Medicine Clinical Trial Award
Congressionally Directed Medical Research Program (CDMRP)
cdmrp.army.mil

What: Research Programs included in the FY14 CDMRP are ($M):

- 200 Peer Reviewed Medical Research
- 120 Breast Cancer Research
- 80 Prostate Cancer Research
- 30 Peer Reviewed Orthopaedic
- 30 Spinal Cord Injury
- 20 Ovarian Cancer Research
- 25 Peer Reviewed Cancer – skin, pediatric brain, genetic, non-invasive ablation treatment
- 20 Gulf War Illness Research
- 15 Neurofibromatosis Research
- 10 Lung Cancer Research
- 7 Amyotrophic Lateral Sclerosis
- 6 Autism Research
- 6 Tuberous Sclerosis Complex Research
- 5 Multiple Sclerosis
- 3 Bone Marrow Failure
- 3 Duchennne Muscular Dstrophy

Proposals undergo two stage review - peer, then program

How Much: 1-5 year grants, average of $150K/yr (direct)
If multiyear funded, all funds come from the FY14 appropriation

When: Various – see website program announcement

Where: Information at: cdmrp.army.mil
Proposal submission to be done via grants.gov
## Guide to Homeland Security / Intelligence Community Basic Research Funding

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Revised 5 Sep 2014
What: Within its Basic Research Portfolio, S&T generally funds quality research projects that meet at least one of these selection criteria:
  * Addresses an important Department issue without a near-term solution.
  * Pursues a creative solution that addresses a unique, long-term Department need, which is not addressed elsewhere.
  * Exploits new scientific breakthroughs (for example, from universities, laboratories, or industry) that could strengthen homeland security.

Generic areas (DHS S&T Divisions) are:
  - Border and Maritime Security (BMD) - Tools and Technologies to improve security
  - Chem / Bio (CBD) - Awareness and Countermeasures
  - Cybersecurity (CSD) - Cybersecurity and information assurance solutions
  - Explosives Countermeasures (EXD) - Detection, Mitigation, Response
  - First Responder Group (FRG) - identifies/validates/fixes capability gaps
  - Office of Standards (STN) - development and promote use of standards
  - Resilient Systems (RSD) - develop and deploy solutions

How Much:

When: A white paper submission anytime up to 31 Dec 2018

Where: DHS S&T LRBA14-02
Office of the Director National Intelligence (ODNI)
Intelligence Advanced Research Projects Agency (IARPA)
http://www.iarpa.gov/

What:
Smart Collection (SC) Dramatically improve the value of collected data from all sources.
Incisive Analysis (IA) Maximize insight from the information we collect, in a timely fashion.
Safe & Secure Operations (SSO) Counter new capabilities that would threaten our ability to operate freely and effectively in a networked world.

In addition to generic BAAs, there are specific, directed funding opportunities throughout the year.

Seedling ideas are to be for topics that are not addressed by emerging or ongoing IARPA programs or solicitations. It is primarily intended for early stage research that may lead to larger, focused programs through a separate BAA in the future, so periods of performance generally will not exceed 12 months.

Offerors are strongly encouraged to submit a five-page abstract describing their proposed research as their first formal submittal to IARPA before preparing a full proposal.

How Much: DARPA-like funding profiles

When: Early preferred, but at any time up to 9 Mar 2015 for current generic solicitations

Where:
SMART COLLECTION IARPA-BAA-14-01
INCISIVE ANALYSIS IARPA-BAA-14-02
SAFE AND SECURE OPERATIONS IARPA-BAA-14-03
What:
The Director's Innovation Initiative provides a risk-tolerant environment to invest in cutting edge technologies and high payoff concepts relevant to the NRO's mission. The projects focus on NRO R&D thrusts such as developing new intelligence sources and methods to solve intractable intelligence problems.

The DII Program funds basic research efforts, e.g., technology readiness levels 1-3, that substantially enhance mission performance and address the areas of interest listed below. The two main areas of interest categories, equally weighted, are:

- Enabling Collection Technologies and
- Data Processing, Management and Dissemination Enabling Technologies

We anticipate that proposals will be sought from US domestic educational institutions, non-profit and not-for-profit organizations and private industry.

How Much:
Selected projects will receive a maximum of $450K over nine months - essentially seedlings toward a larger program


Where: Broad Agency Announcement NRO000-14-R-0219
What:
DIA is interested in the full range and full scope of possible innovative ideas from all interested and qualified sources, to include participation by, and potentially with, both "traditional and non-traditional " members (e.g. large businesses, small businesses, independent consultants, academic institutions, consortium participants, other).

The DIA is interested in all potential "innovative" concepts/ideas of interest that may fill current gaps, to include effort focused principally on maximizing agency operating efficiency and effectiveness, and access by the DIA to potential or existing state-of-the-art innovations, both technical and otherwise, that may not currently be in use by the agency or that may be in limited use and in need of leveraging across a greater expanse of the collective enterprise. Areas of need, as listed on DIA’s Needipedia webpage are:

1. Prevents Strategic Surprise
2. Supports Contingency Response
3. New Analysis Technologies and Methods
4. Enhances Counter Intelligence and Security
5. Human Intelligence Capability Development
6. Mission Enhancing Science and Technology
7. Improves Mission Support Capabilities
8. Enhances Technical Collection
9. Increases Organizational Effectiveness
10. Empower Partnerships

How Much: nothing specified

When: white papers (required) accepted from 1 Jan 2014 to 8 Sep 2014

Where: DIA-BAA-14-01 issued 27 Nov 2013 and revised 31 Jul 2014
What:
Path-breaking GEOINT research in areas of potential interest to NGA, the DoD, and the Intelligence Community (IC). Example areas are:

- Access to GEOINT data and services
- Advancing Geolocation and data uncertainty
- Anticipatory Analysis
- Computer Vision
- Earth, Ocean, and Atmospheric Science supporting GEOINT
- Exploiting data from new sources and sensors
- GEOINT tradecraft
- Geolinguistics
- Video Indexing and Search
- Video Content Extraction

Graph methods for geospatial data
Image Science
Massive data
Predictive intelligence
Signature development & discovery
Spatio-temporal analysis
Strategic indications and warning
Understanding human activities
Visual analytics for GEOINT

University Research Initiatives (NURI) awards focused on fundamental research in Geospatial Intelligence topics such as those listed above.

New Investigator Program (NIP) grants are open to faculty employed by eligible institutions who are U.S. citizens, U.S. nationals, or permanent U.S. residents who have held their doctorate degrees (PhD or equivalent) for less than five years at the time of application.

Offerors are highly encouraged to submit white papers prior to submitting proposals

How Much:
NURI awards have a 2yr base period with a value of up to $300K, with up to 3 one-year options valued at up to $150K per option year.
NIP award grants have a 2yr base period valued up to $200K, with a up to one-year option valued at $100K.

When: White papers anytime before 31 August 2017

Where: Broad Agency Announcement (BAA) HM0210-14-BAA-0001
### Guide to Dept of Energy Funding

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## Adv Research Projects Agency - Energy

| ARPA-E                                                 | http://arpa-e.energy.gov/ |

## National Nuclear Security Administration

| NNSA                                                   | http://nnsa.energy.gov/aboutus/ |
What:
• Prior to submission of an application for a research grant, the PI is encouraged to contact the program manager whose areas of expertise and responsibilities most closely match the topic of the proposed research activities to learn about current funding opportunities and the nature of the work.
• Based on the interaction with a program manager, the PI may be encouraged to submit a pre-application.
• Based on a review of the proposed research, the principal investigator will be either encouraged or discouraged to submit a full application.
• All grants that are funded undergo external peer review.
• The usual term for a new award is three or four years, divided into one-year budget periods.

How much: Varies with the program.

When:
Applications may be submitted at any time. However, it is recommended that a full application be sent between June 1st and November 30th in order that SC can make a funding decision by June of the following year.

Where:
DE-FOA-0000995 - FY2014 Continuation of Solicitation for the Office of Science Financial Assistance Program
Applications must be submitted through Grants.gov to be considered for award.
DOE
Energy Efficiency and Reliable Energy (EERE)
Applied Research and Development Programs

The programs support research and development of energy efficiency or renewable energy technologies:

- Biomass http://www1.eere.energy.gov/biomass/
- Buildings http://www1.eere.energy.gov/buildings/
- Geothermal http://www1.eere.energy.gov/geothermal/
- Fuel Cells http://www1.eere.energy.gov/hydrogenandfuelcells/
- Advanced Manufacturing http://www1.eere.energy.gov/manufacturing/
- Solar http://www1.eere.energy.gov/solar/
- Vehicles http://www1.eere.energy.gov/vehiclesandfuels/
- Weatherization and Intergovernmental http://www1.eere.energy.gov/wip/
- Wind http://www1.eere.energy.gov/wind/
- Water Power http://www1.eere.energy.gov/water/
What: Predictive Science Academic Alliance Program
The centers are either Multidisciplinary Simulation Centers (MSC) or Single-Discipline Centers (SDC) solving a problem that advances basic science/engineering; verification and validation/uncertainty quantification; and contributing towards achieving effective exascale computing, to demonstrate predictive science in a High Performance Computing environment.

How Much: Up to $4M/yr for MSC; $2M/yr for SDC

When: due by June 2012

Where: DE-FOA-0000728

What: Stewardship Science Academic Program
The SSAA Program was developed to support state-of-the-art research at U.S. academic institutions in areas of fundamental physical science and technology of relevance to the Stockpile Stewardship Program mission.

- Properties of Materials under Extreme Conditions and/or Hydrodynamics
- Low Energy Nuclear Science
- Radio Chemistry

How Much typically $50-300K/yr for up to 3 years

When: due by 27 Oct 2014

Where: DE-FOA-0001067
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NASA Principal Research Funding Offices
(NSPIRES web site http://nspires.nasaprs.com/external/)

- **Science Mission Directorate (SMD)**
  science.nasa.gov/
  Research Opportunities in Space and Earth Sciences (ROSES, NRA-NNH14ZDA001N)

- **Aeronautics Research Mission Directorate (ARMD)**
  www.aeronautics.nasa.gov/
  Research Opportunities in Aeronautics (ROA, NRA - NNH14ZEA001N)
  Aeronautics Research generates the innovative concepts, and technologies that will enable revolutionary advances in future aircraft

- **Human Exploration and Operations Systems Mission Directorate (HEO)**
  www.nasa.gov/directorates/heo/home/index.html
  Human Exploration Research Opportunities (HERO, NRA NNJ14ZSA001N)
  Joint NASA/ National Space Biomedical Research Institute (NSBRI) research solicitation in support of space exploration, focused on health effects from space radiation and human physiological changes associated with exploration.

- **Space Technology Mission Directorate**
  www.nasa.gov/directorates/spacetech/home/index.html
  Space Technology Research, Development, Demonstration and Infusion 2014 (NNH14ZOA001N)

- **Office of Education**
  www.nasa.gov/offices/education/about/index.html
  Education Opportunities in NASA STEM (EONS, NRA NNH14ZHA001N)

NRA NASA Research Announcement
Guide to **NIST** Research Funding

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Measurement Science and Engineering (MSE) Research Grant Program
Support NIST laboratories with research in fields such as: material measurement; physical measurement; engineering; fire research; information technology; neutron research; nanoscale science and technology; standards services; and law enforcement standards.

Precision Measurement Grants
Support researchers in U.S. colleges and universities for experimental and theoretical studies of fundamental physical phenomena

Standards Services Curricula Development Cooperative Agreement Program
$100K in FY2014
The recipients will work with NIST to strengthen education and learning about standards and standardization

Nanoelectronics
Supports research and innovation in nanoelectronics through a partnership between NIST and the Semiconductor Research Corp. (SRC).

Centers of Excellence (at Universities)
$20M in FY2014
Establish four competitively selected Centers of Excellence in measurement science areas defined by NIST that will leverage and expand NIST research capabilities. The first, an Advanced Materials Center, was announced in Dec 2013; the consortium is led by Northwestern.

Competitions for CoEs in Resilience and in Forensics were announced in 2014.

National Network for Manufacturing Innovation (NNMI)
$2B in FY2015 Budget Request - unfunded by Congress in two prior years
The key objective of the NNMI is to accelerate innovation and transition technology to US manufacturing enterprises.

Four Institutes have been established using redirected Agency funds:
DOD - Additive Manufacturing, Digital Manufacturing and Design, and Lightweight Metals;
DOE - Wide Bandgap Semiconductors for Power Applications
Another four are under consideration - 2 by DOD, 1 by USDA, and 1 by DOE EERE

http://www.nist.gov/director/ocfo/grants/grants.cfm
## Guide to NOAA Research Funding

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**What:**
The agency conducts and supports climate research, essential oceanic and atmospheric observations, modeling, information management, assessments, interdisciplinary decision support research, outreach, education, and stakeholder partnership development.

The nine competitions covered by the annual (2014) announcement are as follows:
- COM - Arctic Research Program for 2015-2020
- ESS - AC4 Nitrogen cycle improvements in the GFDL Earth System Models
- ESS - CVP Climate Process Team: Understanding Processes Affecting Madden-Julian Oscillation
- ESS - CVP Understanding Arctic Sea Ice Mechanisms and Predictability
- MAPP - Process-oriented evaluation of climate and Earth system models and derived projections
- MAPP - North American Multi-Model Ensemble system evaluation and application
- MAPP - Advancing a common software modeling and data infrastructure for NOAA's global models
- CSI - Resilient Coastal Communities and Ecosystems: Understanding climate-related health risks within the coastal environment.
- CSI - The Regional Integrated Sciences and Assessments (RISA) Program to fund one RISA team in up to 6 regions of the US
- CSI - SARP - NIDIS: A National Drought Monitoring and Risk Management Center

**How Much:**
In FY 2014, ~$15 million will be available for approximately 100 new awards.
It is anticipated that most awards will be at a funding level between $50 and $200K per year.

**When:** Annual Solicitation, for FY2015
Letters of Intent for all Competitions should be received on August 10, 2014.
Full applications for all Competitions must be received on October 20, 2014.

**Where:** Funding Opportunity Number: NOAA-OAR-CPO-2015-2004099
http://cpo.noaa.gov/GrantsandProjects.aspx
What: OER supports a continuum of ocean science that makes discoveries via exploration and research, and transitions the new knowledge and capabilities to the rest of NOAA, and the national and international science, technology, and ocean management communities.

Its Strategic Plan outlines four strategic goals:
• Conduct scientific baseline characterizations of unknown or poorly-known ocean basin boundaries, processes, and resources
• Transition ocean exploration discoveries to new research areas and research results to new applications to benefit society
• Increase the pace, scope, and efficiency of exploration and research through advancement of underwater technologies
• Engage audiences through innovative means by integrating science, education and outreach

OER seeks bold, innovative proposals with interdisciplinary approaches and objectives which fall within one (or more) of three categories:
  Ocean Exploration
  Marine Archaeology
  Ocean Exploration Education

When: Funding Opportunity: NOAA-OAR-OER-2014-2003874
  Two page pre-proposal due date 4 Nov 2013
  Full proposal due 31 Jan 2014

Where: Visit the Ocean Explorer website to see past and present OE-funded activities.
  http://oceanexplorer.noaa.gov/
Guide to USDA Funding
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What:
In the last several years NIFA has issued seven RFAs for the AFRI Program:
  • Foundational Program addressing the six AFRI priority areas
    a) Plant Health and Production and Plant Products
    b) Animal Health and Production and Animal Products
    c) Food Safety, Nutrition, and Health
    d) Renewable Energy, Natural Resources, and Environment
    e) Agriculture Systems and Technology
    f) Agricultural Economics and Rural Communities
  • Challenge Areas (5):
    a) Childhood Obesity Prevention
    b) Climate Change
    c) Food Safety
    d) Global Food Security
    e) Sustainable Bioenergy
  • NIFA Fellowships Grant Program soliciting Pre and Postdoctoral applications

Applications for AFRI funds may also be solicited through other announcements including supplemental AFRI RFAs or in conjunction with multi agency programs

How Much:
Standard Grants not exceed $500K total (including indirect costs) for project periods of up to 5 years.

When:
Letter of Intent Deadline  Required for most programs
for FY2014 competition due date in Feb 2014
Application Deadline  for FY2014 program, due date Apr/May 2014

### Guide to ED Research Funding

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Identify a current funding opportunity that matches your research interests and identify the relevant Letter of Intent and application deadlines.

- Education Research Programs (84.305A)
- Education Research and Development Centers (84.305C)
  - Knowledge Utilization
  - Standards in Schools
  - Virtual Learning
- Statistical and Research Methodology in Education (84.305D)
  - Statistical and Research Methodology Grants
  - Early Career Statistical and Research Methodology Grants
- Partnerships and Collaborations Focused on Problems of Practice or Policy (84.305H)
  - Researcher-Practitioner Partnerships in Education Research
  - Continuous Improvement Research in Education
  - Evaluation of State and Local Education Programs and Policies
- Special Education Research Programs (84.324A)

Contact relevant Program Officer(s) for the topic(s) of interest

Register for a funding opportunities webinar to learn more about the application process and choosing an appropriate funding opportunity.

Submit your (optional but strongly encouraged) Letter of Intent.

The Institute of Education Sciences also considers unsolicited applications for research, evaluation, and statistics projects that would make significant contributions to the mission of the Institute. Unsolicited applications are defined as those that are not eligible for funding under the Institute's current grant competitions.
# Guide to EPA Research Funding

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<td>National Center for Environmental Research Extramural Programs</td>
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What:  NCER’s Science to Achieve Results or STAR program funds research grants and graduate fellowships in numerous environmental science and engineering disciplines through a competitive solicitation process and independent peer review.

In addition, through this same competitive process, NCER periodically establishes large research centers in specific areas of national concern. At present, these centers focus on children’s health, hazardous substances, particulate matter, and estuarine and coastal monitoring.

At present, STAR is focusing on the health effects of:
- particulate matter,
- drinking water,
- water quality,
- global change,
- ecosystem assessment and restoration,
- human health risk assessment,
- endocrine disrupting chemicals,
- pollution prevention and new technologies,
- children’s health, and
- socio-economic research.

When:  Periodic, for 2014 the following is planned
- Air Pollution Monitoring for Communities: Closing: Oct 7, 2014
- Centers of Excellence on Environmental Health Disparities
- Centers for Children's Environmental Health and Disease Prevention Research
- 12th Annual P3 Awards: 2015 Phase I

Where:  See website - http://www.epa.gov/ncer/rfa/
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DOT Research Programs
http://www.rita.dot.gov/rdt/dot_research_programs.html

Office of Res and Technol  University Transportation Centers - national, regional and Tier 1

Aviation  Federal Aviation Administration (FAA) Data and Research Centers of Excellence (Univ - Industry - Government)

Highway  Federal Highway Administration (FHWA) Research
        Turner-Fairbank Highway Research Center
        Exploratory Advanced Research Program

Maritime  Maritime Administration (MARAD) Research and Development Activities

Motor Carrier  Federal Motor Carrier Safety Administration (FMCSA) Analysis, Research and Technology

Hazardous Mat’ls  Pipeline and Hazardous Materials Safety Administration (PHMSA) Research & Development

        NHTSA Vehicle Safety Research

Pipeline  PHMSA Research & Development

Railroad  Federal Railroad Administration (FRA) Research and Development

Transit  Federal Transit Administration (FTA) Research, Technical Assistance & Training

Intermodal Research  Intelligent Transportation Systems Joint Program Office
        DOT Climate Change Center

Cooperative Research Programs
        Airport Cooperative Research Program (ACRP)
        Hazardous Materials Cooperative Research Program (HMCRP)
        National Cooperative Freight Research Program (NCFRP)
        National Cooperative Highway Research Program (NCHRP)
        Transit Cooperative Research Program (TCRP)
National Institutes of Health (NIH)
Extramural Funding Opportunities

http://grants.nih.gov/grants/guide/

Agency Organization
• Largest agency of Department of Health & Human Services (DHHS)
• 27 Institutes and Centers
  • Organized according to disease focus
  • One center conducts most NIH peer reviews
• 24 institutes provide extramural research support

Broad Areas of Research Interest
• Research of directed or strong indirect relevance to understanding and preventing disease
• Research on basic biological and psychological processes of preferential interest if there is disease relevance

Five Themes toward Research Investment
• Applying high throughput technologies to understand fundamental biology, and to uncover the causes of specific diseases
• Translating basic science discoveries into new and better treatments
• Putting science to work for the benefit of health care reform
• Encouraging a greater focus on global health
• Reinvigorating and empowering the biomedical research community
The NIH provides financial support in the form of grants, cooperative agreements, and contracts. This assistance supports the advancement of the NIH mission of enhancing health, extending healthy life, and reducing the burdens of illness and disability. While NIH awards many grants specifically for research, we also provide grant opportunities that support research-related activities, including: fellowship and training, career development, scientific conferences, resource and construction.

See the announcements
http://grants.nih.gov/grants/guide/
http://grants.nih.gov/grants/planning_application.htm#search

Guide to writing proposals
http://grants.nih.gov/grants/grant_basics.htm

How Much: Varies with program - see announcement

Note that an NIH proposal requests direct monies, indirect costs are added from another account.

When: Varies with program - see the specific announcement

Where: http://grants.nih.gov/grants/submitapplication.htm
Suggestions for Success

Program Officer – Program Officer – Program Officer

Program officers (PO) have variable latitude at project level (depending on agency)

(DOD - DOE - NASA - NIH - NSF)

Their reputation / professional advancement is tied in part to your success

Make contact with Program Officer before submitting a white paper or proposal

Be informed - read the descriptive paragraph on the website/announcement, PO datasheet, and information on prior awards (sometimes available from DC office).

Use “elevator pitch” to open contact, gain attention, but be ready for a dialogue - not monologue

Plumb his/her current interest – website paragraphs are likely dated. This can significantly improve the chance of your tailoring ideas to enhance the prospects

If lukewarm/disinterested response, ask for suggestions on other POs who might be interested

Also ask after availability of funds – his/her resources may be fully committed

Watch for new Program Officers - they will be interested in creating “their” program

Utilize the USC Center for Research Excellence workshops

Use your colleagues and the DC Office staff to critique / guide your proposal

Participate in Agency proposal review panels (if available)

No better way to understand what constitutes a credible proposal for that agency

As you mature in your career, consider a rotational assignment at an Agency (if available)

Very good way to establish / cement personal relationships with other POs

Get to see what makes good and bad proposals

Also good opportunity to broaden one’s vistas
Federal Mission Agency Program Summaries (MAPS) Document Repository for:
DHS, DOD, DOE, DOT, ED, EPA, IC, NASA, NIST, NOAA, USDA

- Guide to Agency Funding for FYXX
- Agency Research Program Charts
- Agency S&T Planning Documents and Workshop Reports
- Program Officer Data sheets (with contact info, biosketch, program descriptive illustrative personal publications)
- Program Officer presentations (when available)
- Guides to Proposal Writing

Some of this material available at: https://research.usc.edu/for-investigators/proposal-and-grantwriting/

**MAPS Keyword Searchable Website** (web-app.usc.edu/web/ra_maps).
- Perform keyword searches to locate programs and program officers in the selected Mission Agencies
- Accessed using one’s USC NetID and Password
**Project Officer Background:**
Laura Kienker was a Research Biologist within the Counterterrorism and Forensic Science Research Unit of the FBI Laboratory, where she managed outsourced research projects pertaining to automating the forensic analysis of biological evidence. Prior to joining the FBI, Dr. Kienker directed a Sequencing and Microarray Core Facility for the Center for Immunology at the University of Texas Southwestern Medical Center in Dallas, where she was an Assistant Instructor in the Department of Internal Medicine.

**Education**
B.A. in Biology and Chemistry from Oberlin College  
Ph.D. in Immunology from the University of Pennsylvania

**Program:**

**Metabolic Engineering**
The Office of Naval Research (ONR) Metabolic Engineering Program targets the fundamental understanding of metabolic processes in microbes or plants for the production of chemicals of potential utility to the Navy. Biosynthetic strategies must have clear advantages over conventional chemical-based synthesis routes.

**Biomaterials and Bionanotechnology**
The Office of Naval Research (ONR) Biomaterials and Bionanotechnology Program supports fundamental research that enables the generation of novel, Navy relevant, nano-scale materials and devices.

**Illustrative Publications Reflecting Project Officer Research Interests:**
Both V(D)J recombination and radio resistance require DNA-PK kinase activity, though minimal levels suffice for V(D)J recombination  
Kienker LJ; Shin EK; Meek K  
NUCLEIC ACIDS RESEARCH 28(14), 2752-2761  JUL 15 2000

Regulatory elements in the promoter of a murine TCRD V gene segment  
Kienker LJ; Ghosh MR; Tucker PW  
JOURNAL OF IMMUNOLOGY 161(2), 791-804  JUL 15 1998
NSF

1a. Interest in most S&E
   a proposal will “fit somewhere”

1b. Knowledge inspired - Bohr Quadrant
    more funding in science than in engineering
    (but can include Pasteur when
    addressing topics of societal importance)

1c. Basic monies only, with tweaks such as
    I-CORP, I/UCRC, GOALI, SBIR/STTR

1d. Impact on S&E knowledge
    addressing national/Intl priorities useful

2. Additional requirements for:
    broadening participation
    education, underrepresented
    wider-scale Impact, International
    data management
    Post Doc nurturing

3. Program officer triage for rule compliance
    external proposal review by peer panel
    except for EAGER, RAPID, INSPIRE

4. Review by panel

Mission Agency - Basic Research

Interest restricted to S&E pertinent to mission need
   a proposal must interest a program officer

Use inspired (agency mission) - Pasteur Quadrant
   likely more funding in engineering than in science

Basic, but applied monies may be also available
   (applied tends to have milestones and deadlines)

Impact on S&E knowledge and
   addressing agency mission priorities essential

Generally none - perform the promised research

Program officer triage on basis of content / interest

Review by program officer with possible input from others

EAGER  Early Concept Grants for Exploratory Research
RAPID  Rapid Response Research Grants
INSPIRE Integrated NSF Support Promoting Interdisciplinary Research and Education
I/UCRC Industry University Cooperative Research Program
GOALI Grant Opportunities for Academic Liaison with Industry
I-CORP Innovation Corp
SBIR/STTR Small Business Innovative Research / Small Business Technology Transfer
Illustration for White Paper / Elevator Pitch Ingredients

Topic/project/effort description
Performer Name (Seedling, SBIR, Congressional, etc)

[PROJECT-NANE] ACHIEVEMENT

MAIN ACHIEVEMENT:
- Placeholder explanatory text. Replace with text and diagrams as necessary.

HOW IT WORKS:
- Placeholder explanatory text paragraph. Replace with text and diagrams as necessary.

ASSUMPTIONS AND LIMITATIONS:
- Limitation or assumption.
- Another limitation or assumption.

CHARACTERIZE THE QUANTITATIVE IMPACT
(DO DELETE THIS BOX OF TEXT AND INSERT TABLE, GRAPH, OR OTHER SUITABLE VISUALIZATION)
- First item planned. Add more text as necessary.
- Second item planned. Add more text as necessary.
- Add other points as necessary.

END-OF-PHASE GOAL

What are the end-of-phase goals?
(REPLACE WITH DIAGRAM/TEXT/THRESHOLD CRITERIA)
- First key point.
- Additional as necessary.

Budget: FY?? -$???,???

Transition Partners:

A Sentence Why It Is Important/Useful
Proposal Writing Resources
(available in MAPS or at shown URL)

NSF CAREER
  CAREER Proposal Writing                                    Hazelrigg, NSF
  CAREER Proposal Writing Tips                               Pei
  CAREER Program Presentation (2013)                         LA Salle, NSF
  Writing a Successful CAREER Proposal                       Vigeant, Univ Hartford
  Broad(er) impacts of the NSF CAREER Proposal               Schmitz, UNCC

Other
  USC Research Advancement  http://research.usc.edu/for-investigators/proposal-and-grantwriting/
  A Tips for Authoring Grant Proposals                        Hill, Univ Wisc-Madison
  Tips on Writing a Competitive Grant Proposal                Clary, Western SARE
  Writing a good grant Proposal                               Jones, Microsoft
  Guide for Writing a Funding Proposal                        Levine, Mich State Univ.
  Obtaining Federal Funding                                  Wardle, NSF
  NSF Guide for Proposal Writing                              NSF 04-016
  The R&D Proposal                                            Yoder, Office of Naval Research
  Demystifying DoD Research Funding                           Palmer, Army Research Office
  NASA Writing Research Proposals                             Hertz, NASA Headquarters
  NIH Writing your application                                http://grants.nih.gov/grants/writing_application.htm
  EPA Writing a Competitive Proposal                          http://www.epa.gov/ogd/recipient/tips.htm

USC Center for Excellence in Research Workshops
  Developing Funded Research Proposals                        Randy Hall (Sep 24, 2014)
  Writing Compelling NSF Proposals                            Paul Ronney (Sep 18, 2014)
  Developing NIH Grant Applications                           Steve Moldin (Oct 1, 2014)
  Obtaining DOD Medical Research Funding                      Carl Castro (Oct 8, 2014)
  Writing Persuasive Proposals                                Bonnie Lund (Oct 10, 2014)
  NSF CAREER Award Proposal Workshop                          Phillip Taylor
Timely Access to new Opportunities

DC Office of Research Advancement

E-mail Alerts
Grants.gov: http://www.grants.gov/applicants/email_subscription.jsp
GrantsNet (medical/biological): http://sciencecareers.sciencemag.org/funding
Environmental Protection Agency (EPA): http://epa.gov/ncer.listserv/
NASA's Office of Space Science Research Announcements: http://spacescience.nasa.gov/announce/listserv.htm
National Science Foundation Updates: https://public.govdelivery.com/accounts/USNSF/subscriber/new?qsp=823
ED Institute for Educational Sciences: http://ies.ed.gov/newsflash/

Grant Forward: www.grantforward.com
Grant Forward, by Cazoodle, is a database of grants where users can search for funding opportunities (federal-, state-, foundation- and institution-sponsored research) across all fields, including the sciences, humanities, and arts. Free (i.e., prepaid) to all USC employees. Creating an account is a simple two-step process – just follow the instructions on the New User Quick Guide

Funding Opportunity Search
• Search for funding opportunities spread across 39 subject areas and 2009 categories
• Large Database of Sponsors comprising Foundation, Federal and Institutions
• Set up alerts and get opportunities delivered straight to your inbox

Researcher Profiles
• Infers researcher’s interests from publication pages and other sources to identify funding opportunities that match
• Each funding opportunity is matched to researchers based on research interests and career stage
Agency Sites Providing Previously Funded Awards

DOE SC  http://science.energy.gov/funding-opportunities/award-search/
DTRA   http://www.dtrareviews.com/register.html (infer from presentations)
EPA    http://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/recipients.welcome/displayOption/grants
NIH    http://report.nih.gov/
NSF    http://www.nsf.gov/awardsearch/
### Selected Agency Young Investigator / Early Career Programs

**White House - Presidential Early Career Award for Scientists and Engineers (PECASE)**

**National Science Foundation (NSF)**

**National Institute of Health (NIH)**
- Career Development Awards: [http://grants.nih.gov/training/careerdevelopmentawards.htm](http://grants.nih.gov/training/careerdevelopmentawards.htm)

**Department of Defense (DOD)**
- DARPA Young Faculty: [http://www.darpa.mil/Opportunities/Universities/Young_Faculty.aspx](http://www.darpa.mil/Opportunities/Universities/Young_Faculty.aspx)

**Department of Energy (DOE)**

**Nuclear Regulatory Commission (NRC)**
- Faculty Development Grant: [http://www.nrc.gov/about-nrc/grants.html](http://www.nrc.gov/about-nrc/grants.html)

**National Aeronautics and Space Administration (NASA)**
- SMD New Investigator: [http://nspires.nasaprs.com/external/solicitations/summary.do?method=init&sollId={AEF75D0F-2272-7DE7-D52A-295B47C8F5CF}&path=open](http://nspires.nasaprs.com/external/solicitations/summary.do?method=init&sollId={AEF75D0F-2272-7DE7-D52A-295B47C8F5CF}&path=open)
- Space Technology Research Grants Program, Early Career Faculty - NNH14ZOA001N

**Environmental Protection Agency (EPA)**

**Department of Education (ED)**

**National Geospatial Intelligence Agency (NGA)**
- [https://www1.nga.mil/PARTNERS/RESEARCHANDGRANTS/Pages/AcademicResearchProgram.aspx](https://www1.nga.mil/PARTNERS/RESEARCHANDGRANTS/Pages/AcademicResearchProgram.aspx)
Postdoctoral Fellowships
Selected Opportunities - some continuing, others ephemeral

Science.gov
Pivot COS

DOD/EPA/FHWA/NIST laboratories
- NRC Research Associateship Program
  http://sites.nationalacademies.org/pga/rap/
  http://nrc58.nas.edu/RAPLab10/Opportunity/Programs.aspx
- ASEE
  http://www.asee.org/fellowship-programs/post-doctoral

Intel Community
- Postdoctoral Fellows Res Program
  http://www.icpostdoc.org/

NASA
  http://nasa.orau.org/postdoc/
  - Fellowships for Early Career Researchers - ROSES 2013 C-20, 21
  - Nancy Grace Roman Technology Fellowships in Astrophysics for Early Career Researchers - ROSES 2013 D-9
  - National Space Biomedical Research Institute Fellowships - NSBRI-RFA-12-03

NSF
  - Arctic Research Opportunities
  - Atmospheric and Geospace Sciences Postdoctoral Research Fellowships
  - Centers of Research Excellence in S&T (CREST) and HBCU Research Infrastructure for S&E (RISE)
  - GeoPrisms Program
  - International Research Fellowship Program
  - Mathematical Sciences Postdoctoral Research Fellowships
  - NSF Astronomy and Astrophysics Postdoctoral Fellowships
  - NSF Earth Sciences Postdoctoral Fellowships
  - NSF Fellowships for Transformative Computational Science using CyberInfrastructure
  - NSF Science, Engineering and Education for Sustainability Fellows
  - Ocean Sciences Postdoctoral Research Fellowships
  - Pan-American Advanced Studies Institutes Program
  - Postdoctoral Fellowships in Polar Regions Research
  - Postdoctoral Research Fellowships in Biology
  - SBE Postdoctoral Research Fellowships
  - ASEE/NSF Corporate Postdoctoral Fellowship for Engineers
  - Intelligence Community (IC) Postdoctoral Research Fellowship Program

USDA NIFA
- Fellows Program
  http://www.csrees.usda.gov/fo/fellowshipsgrantprogramafri.cfm
Research Funding
- Research initiative alerts
- Collaborations across schools, other institutions
- Federal funding agency advocacy
- Strategically targeted activities
- Proposal preparation - editorial and scientific contributions
- Repository with Mission Agency Program Summary (MAPS) resources
- Searchable MAPS Program/Program Officer database

Visibility/Prestige
- (Inter)national conferences / workshops
- Strategic partnerships
- Advisory/planning committees

Faculty Development
- Grant-writing courses
- Talks – staff from DC Office, federal funding agencies
- Faculty recruitment

<table>
<thead>
<tr>
<th>Proposal: Budget/Presentation</th>
<th>Technical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richard May - budget/details</td>
<td>Steve Moldin - biology, medical, bit of everything</td>
</tr>
<tr>
<td>Dan Barker - editorial/details</td>
<td>Jim Murday - physical sciences/engineering</td>
</tr>
<tr>
<td></td>
<td>Al Olson - cyber and intelligence</td>
</tr>
<tr>
<td><a href="mailto:rlmay@usc.edu">rlmay@usc.edu</a></td>
<td><a href="mailto:moldin@usc.edu">moldin@usc.edu</a></td>
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<tr>
<td><a href="mailto:djbarker@usc.edu">djbarker@usc.edu</a></td>
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<td><a href="mailto:alolson@usc.edu">alolson@usc.edu</a></td>
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