



U.S. DEPARTMENT OF
ENERGY

Office of
Science

DOE Office of Science

Presentation to the

Astro 2020: Panel on State of the Profession and Societal Impacts

November 20, 2019

DOE SC Diversity, Equity & Inclusion Initiatives

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DOE Office of Science

<https://science.osti.gov>

DOE High Energy Physics – Cosmic Frontier

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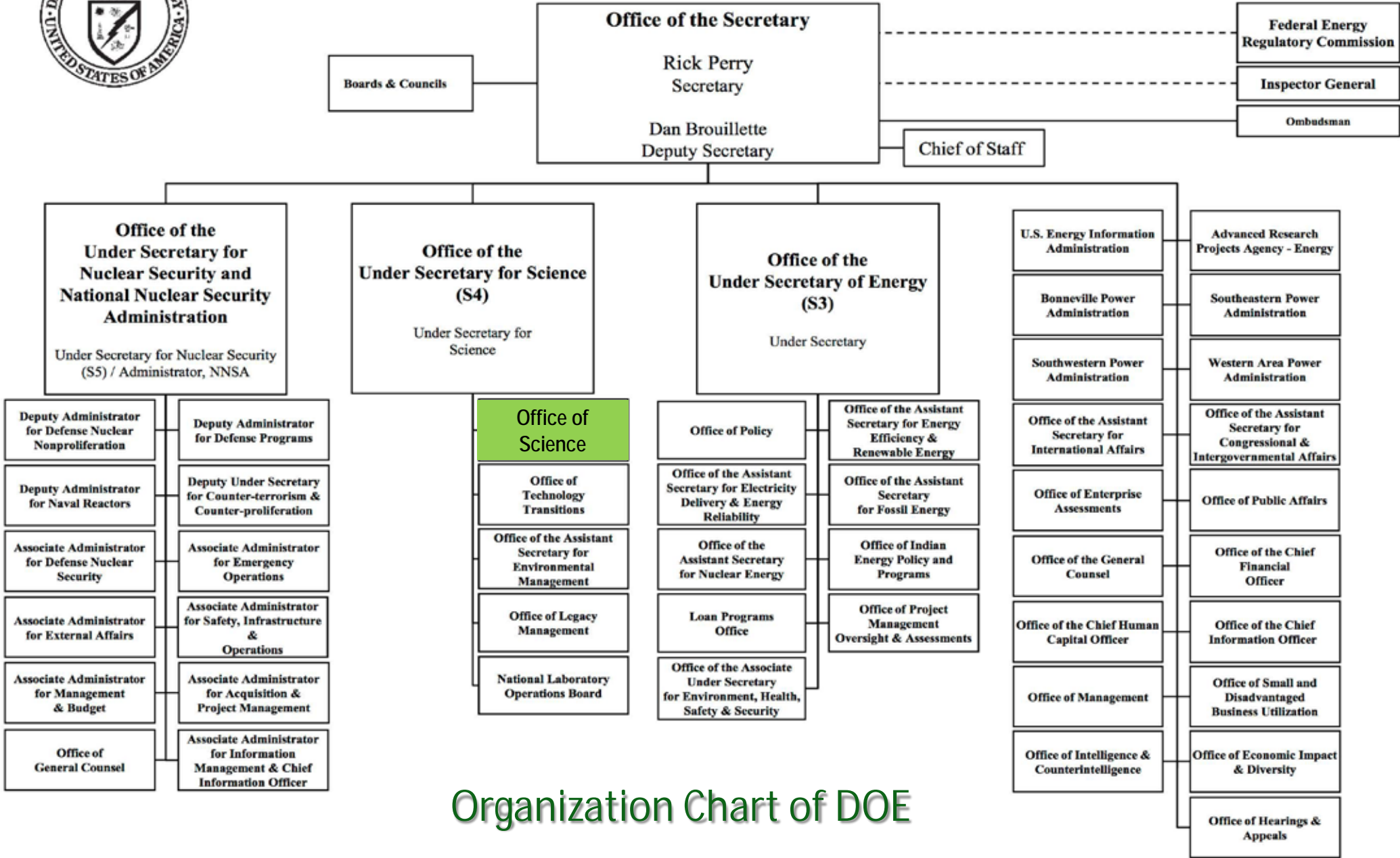
Office of High Energy Physics

DOE Office of Science

<https://science.osti.gov/hep>



DEPARTMENT OF ENERGY



Organization Chart of DOE

DOE Office of Science (SC) - by the Numbers



Shown is a portion of SLAC's two-mile-long linear accelerator (or linac), which provides the electron beam for the new Linac Coherent Light Source – the world's first hard x-ray, free-electron laser. For nearly 50 years, SLAC's linac had produced high-energy electrons for physics experiments. Now researchers use the very intense X-ray pulses (more than a billion times brighter than the most powerful existing sources) much like a high-speed camera to take stop-motion pictures of atoms and molecules in motion, examining fundamental processes on femtosecond timescales.

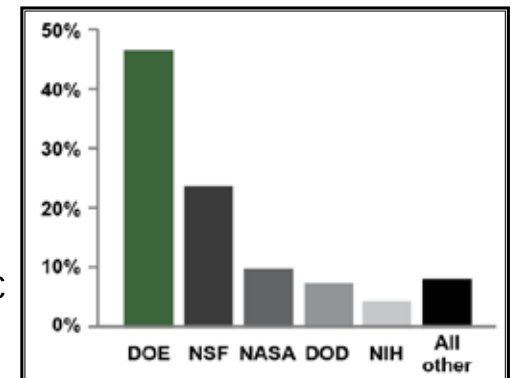
SC delivers scientific discoveries and tools to transform our understanding of nature and advance the energy, economic, and national security of the U.S.

Research

- § Provides over 40% of the U.S. Federal support for basic research in the physical sciences; (FY 2019 Enacted Budget: \$6.585 billion)
- § Supports over 25,000 Ph.D. scientists, graduate students, engineers, and support staff at over 300 institutions and all 17 DOE national laboratories;
- § Maintains U.S. and world leadership in high-performance computing and computational sciences;
- § Continues to be the major U.S. supporter of physics, chemistry, materials sciences, and biology - for discovery and for energy sciences.

Scientific User Facilities

- § SC maintains the world's largest collection of scientific user facilities (aka research infrastructure) operated by a single organization in the world, used by more than 35,000 researchers each year.



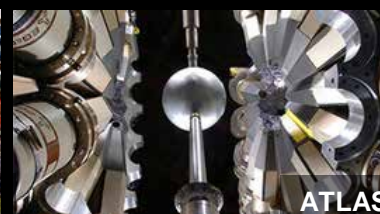
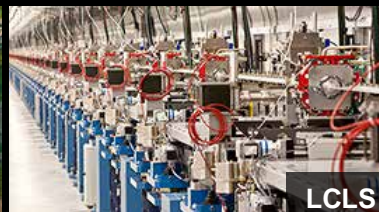
Support for basic research in the physical sciences by agency.

Source: NSF Science and Engineering Indicators

DOE National Laboratories

- § SC stewards 10 of the 17 DOE National Laboratories

FY 2019 27 Scientific User Facilities



U.S. DEPARTMENT OF
ENERGY

Office of Science

DOE Office of Science Research Portfolio*

Basic Energy Sciences

- Understanding, predicting, and ultimately controlling matter and energy at the electronic, atomic, and molecular levels

Advanced Scientific Computing Research

- Extending the frontiers of science through world leading computational science, supercomputers, and networking

Biological and Environmental Research

- Understanding complex biological and environmental systems

Fusion Energy Sciences

- Studying matter at very high temperatures and densities and the scientific foundations for fusion

High Energy Physics

- Exploring the elementary constituents of matter and energy, the interactions between them, and the nature of space and time

Nuclear Physics

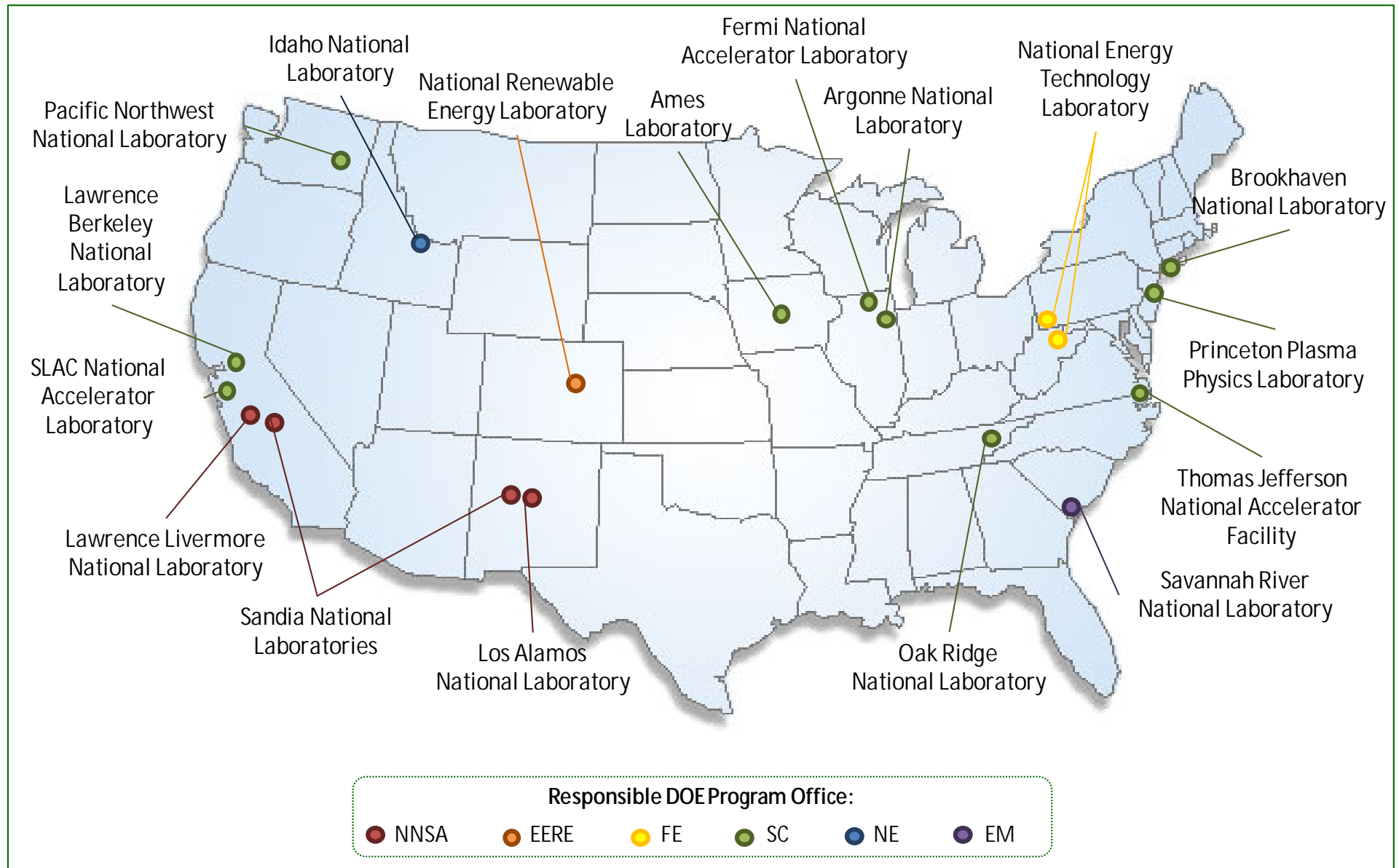
- Discovering, exploring, and understanding all forms of nuclear matter

Each SC Research Program Office:

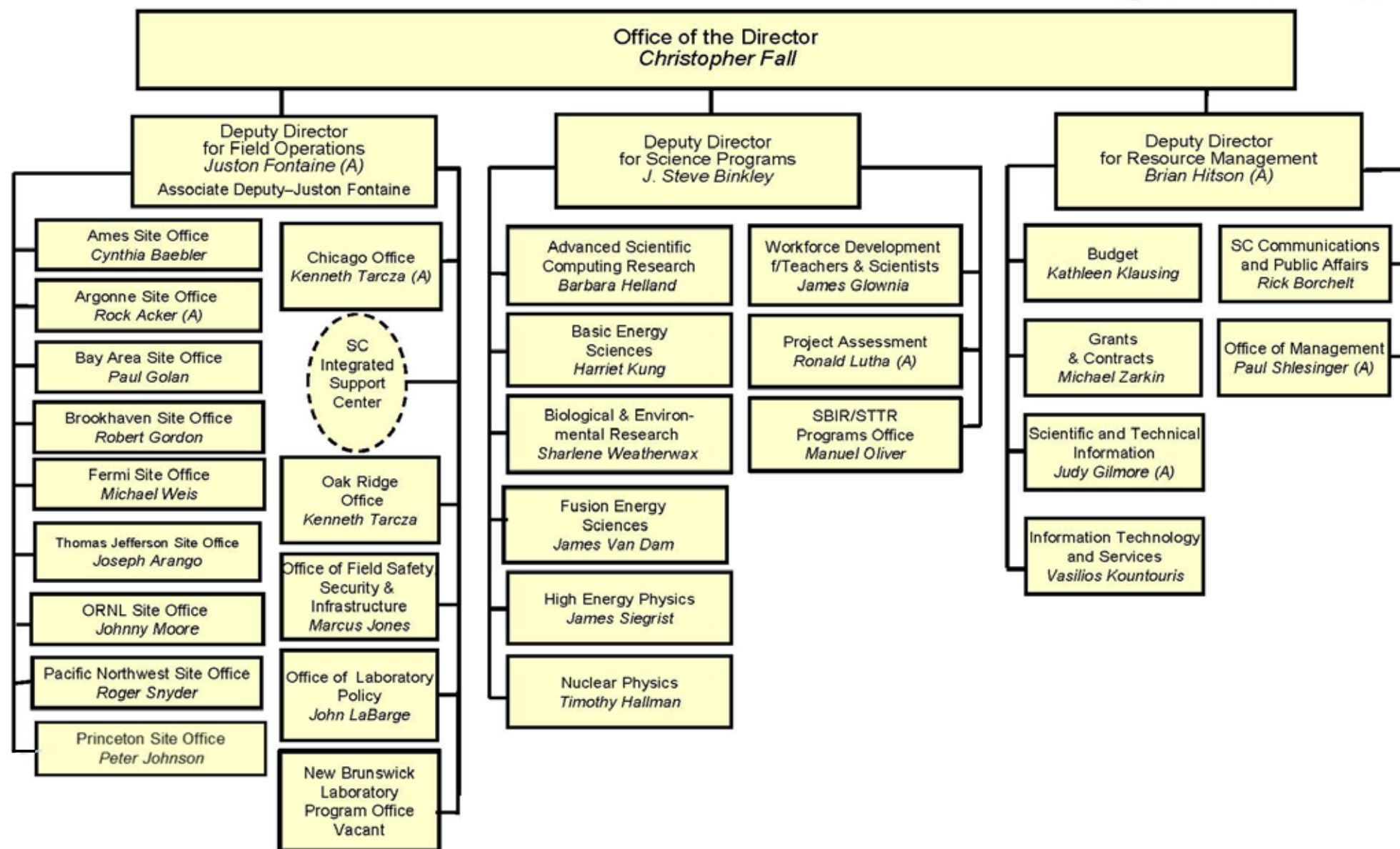
- § Supports research and scientific user facilities
- § Supports a portfolio of research at universities and DOE laboratories.
- § Competitively awards all research.
- § Reviews all user facilities periodically for S&T performance and for management.
- § Participates in substantial community engagement (Federal Advisory Committees, technical workshops, NAS reviews) to identify priorities.

* Also Includes the SBIR/STTR Programs and Workforce Development

DOE National Laboratories



Office of Science Organization



Diversity, Equity & Inclusion Initiatives

DEI at
the DOE
National Labs

Promoting
DEI in SC's
Business
Practices

SC's
Statement of
Commitment

DOE &
Interagency
Coordination

Diversity, Equity & Inclusion at DOE National Labs

- § In 2015, the DOE Office of Science began to take a closer look at the policies and requirements of its 10 DOE national laboratories for fostering diverse and inclusive research environments, as well as policies and procedures for prohibiting discrimination and harassment.
- § The DOE laboratories are required under their Management & Operating (M&O) Contracts to have in place “innovative strategies for increasing opportunities to fully use the talents and capabilities of a diverse work force,” including promoting diversity through:
 - § The contractor’s workforce
 - § Educational outreach
 - § Community involvement
 - § Subcontracting and technology transfer
- § The DOE labs must also meet the requirements set forth in civil rights laws regarding the prohibition of discrimination and harassment and preventing hostile work environments.
- § Up until that time, oversight of these requirements were largely managed by the SC federal site offices.



A New SC Process for Review of SC Labs' DEI Efforts

- § Since 2006, SC leadership has engaged its 10 DOE labs in annual laboratory planning (ALP) processes whereby SC's senior management reviewed the labs' S&T strategic plans, including looking at infrastructure needs and human resources. A recognized best practice in DOE.
- § In 2016, borrowing a page from SC ALP playbook, SC established a process for an SC Headquarters-led annual evaluation of the laboratories' efforts in diversity, equity, and inclusion (DEI).
- § In October 2016, the former SC Director issued a memo to the 10 SC laboratories describing:
 1. The steps SC would take to establish uniform guidance for SC laboratories to communicate their DEI strategies to SC, and how SC would review and provide feedback on their strategies, and
 2. A new requirement for the SC laboratories to publically post their workforce demographic data on their public websites, and update the data annually. (Due by April 2017.)
- § The Labs were invited to provide feedback on the SC guidance before it was issued in final form.
- § The National Laboratory Directors Council (NLDC) came up with a common set of job categories across the DOE lab complex that the labs would use to report demographic information in a consistent manner.



A New SC Process for Review of SC Labs' DEI Efforts

This new process started a shift in oversight from compliance to requiring actionable strategies.

- § SC guidance to the labs provided a common set topics the labs should address in their DEI Strategies, including describing their lab DEI challenges, leadership and staff roles and responsibilities, DEI goals, accomplishments and planned actions, and measures of progress.
- § SC review of the labs' strategies would include Associate Director-level feedback and SC leadership feedback from Headquarters, as well as SC Site Office input.
- § In 2017 and 2018, SC's review process coincided with the ALP review process, with high level feedback provided to DOE Lab senior management, followed by detailed written feedback.
- § In 2019, SC's review process for the lab DEI strategies was decoupled from the ALP process to allow for more time to review and more detailed feedback discussions with Laboratory Leadership.
- § After three years of this process, SC decided it was time to commence an external peer review of experts to evaluate the laboratories' DEI efforts – conducted in early November.



Emerging DEI Promising Practices at DOE Labs

A few examples:

- § Strong, demonstrated commitment by lab leadership to foster a culture at the lab that embraces diversity, equity, and inclusion.
- § Lab-wide professional climate surveys to assess the lab cultures and identify challenges, periodic pulse surveys.
- § Establishing a lead D&I manager who has direct access to the Laboratory Director.
- § Holding lab management and supervisors accountable for lab's D&I goals through their performance appraisals.
- § Openly posting and competing all laboratory positions, including postdoc positions.
- § Requiring diversity and implicit bias training of all hiring managers.
- § Screening all job postings for gender biased language using reputable commercial software programs.
- § Supporting Employee Resources Groups that are formally chartered and have Executive-level champions.
- § Competitive benefits and family-friendly policies (e.g. paid parental leave, flexible work schedules).
- § Strategically using STEM training program participants as a direct pipeline to diverse laboratory hires.
- § Tracking the effectiveness of DEI efforts with meaningful metrics and measures of success.



SC External Review of the SC DOE Lab DEI Efforts

SC has convened a panel of experts this Fall to evaluate whether the strategies and actions to promote diversity, equity, and inclusion at the DOE SC National Laboratories are effective by ensuring that:

- § The SC National Laboratories can competitively attract, develop, and retain a diverse workforce of talented staff, and
- § The SC National Laboratories cultivate equitable and inclusive laboratory cultures that are critical to building the creative and innovative work environments needed to deliver on the DOE mission.

The intent of the panel review is to collect valuable, independent feedback from external peer reviewers to inform SC on how its DOE national laboratories can more effectively advance their diversity, equity, and inclusion efforts.

The review panel consists of reviewers with expertise ranging from leadership in managing large research organizations or departments; operations management, including human resources and civil rights compliance; social science research in diversity, harassment, and workplace civility; and professional leadership in promoting diversity in science and engineering fields.



DOE National Labs Workforce Demographic Data (all 17)

<https://nationallabs.org/staff/diversity/> (NLDC Website)

CHANGE DATA VIEW:

ALL JOBS

SENIOR LEADERSHIP

RESEARCH/TECHNICAL MANAGEMENT

OPERATIONS MANAGEMENT

TECHNICAL RESEARCH STAFF

OPERATIONS SUPPORT STAFF

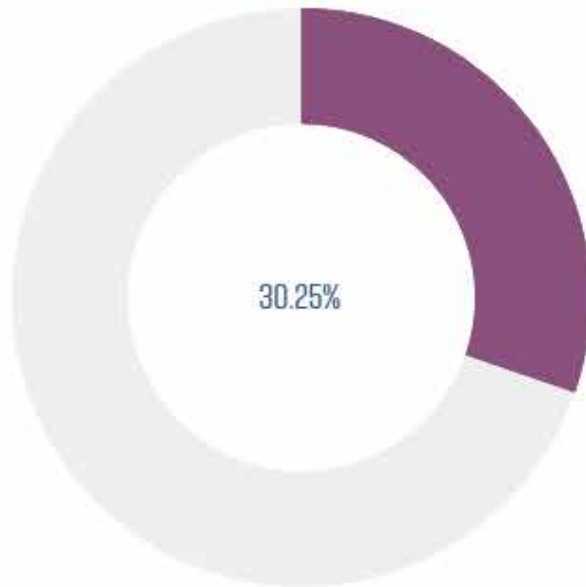
POST DOCTORAL

GRADUATE STUDENT

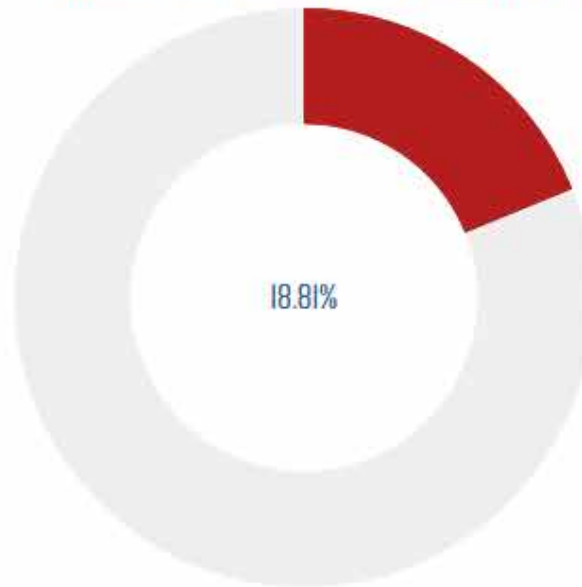
UNDERGRADUATE STUDENT

ALL JOBS

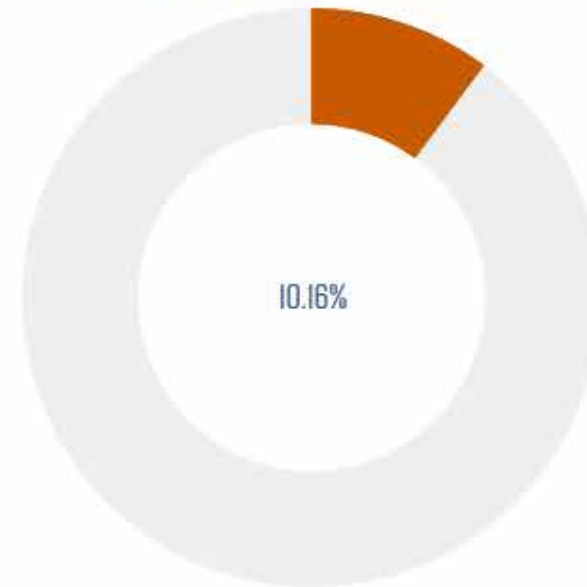
WOMEN



UNDER-REPRESENTED MINORITIES



OTHER PEOPLE OF COLOR



Links to SC Labs from: <https://science.osti.gov/sc-2/Research-and-Conduct-Policies/Diversity-Equity-and-Inclusion/Diversity-Equity-and-Inclusion-at-the-DOE-National-Laboratories>



Promoting DEI in SC's Business Practices – in Progress

- § In 2018, the Office of Science initiated an internal review of its business practices to identify opportunities to better promote diversity, equity, and inclusion in our award making and awards management processes, and better communicate policies, practices, and procedures to our research community.
- § SC established an internal D&I Working Group to carry out this review, with membership from each of the SC program offices (nominated by their ADs) and led by the Office of the Deputy Director for Science Programs.

Charge:

- § Assess what SC is currently doing to improve diversity, equity and inclusion.
- § Identify opportunities for SC to demonstrate that diversity, equity, and inclusion are foundation to SC business practices:
 - Through its processes and procedures for research awards to universities and the DOE labs;
 - Through its processes and procedures for PI meetings, workshops, and advisory committees; and
 - Through better outreach and communications (internally and with the SC research communities).



Review of DEI in SC's Business Practices

I. Information Request on DEI in the 8 SC Program Office business practices, and analysis.

II. Deep Dive into SC's practices by topic area:

- § Existing flexibilities within current financial assistances policies and regulations;
- § Solicitation language, use of Letters of Intent and Pre-proposals;
- § Peer Review Processes (Proposals: e.g. reviewer selection process, proposal review processes, associated programs manager and reviewer training, and resources/tools);
- § Peer Review Processes (Performance reviews: S&T research reviews at DOE sites, and user facilities reviews);
- § Workshops/Roundtables and Principal Investigator Meetings;
- § FACAs and Subcommittees/COVs; and
- § Notional implementation strategies.

Process for discussion of each topic area included:

- Systematic review of current SC policies and procedures; existing practices of some SC programs offices; analysis of outcomes from SC-sponsored equity workshops (2006-2009); FAC Committee of Visitors' recommendations (2012 to present); and known policies and practices of other Federal agencies and institutions.



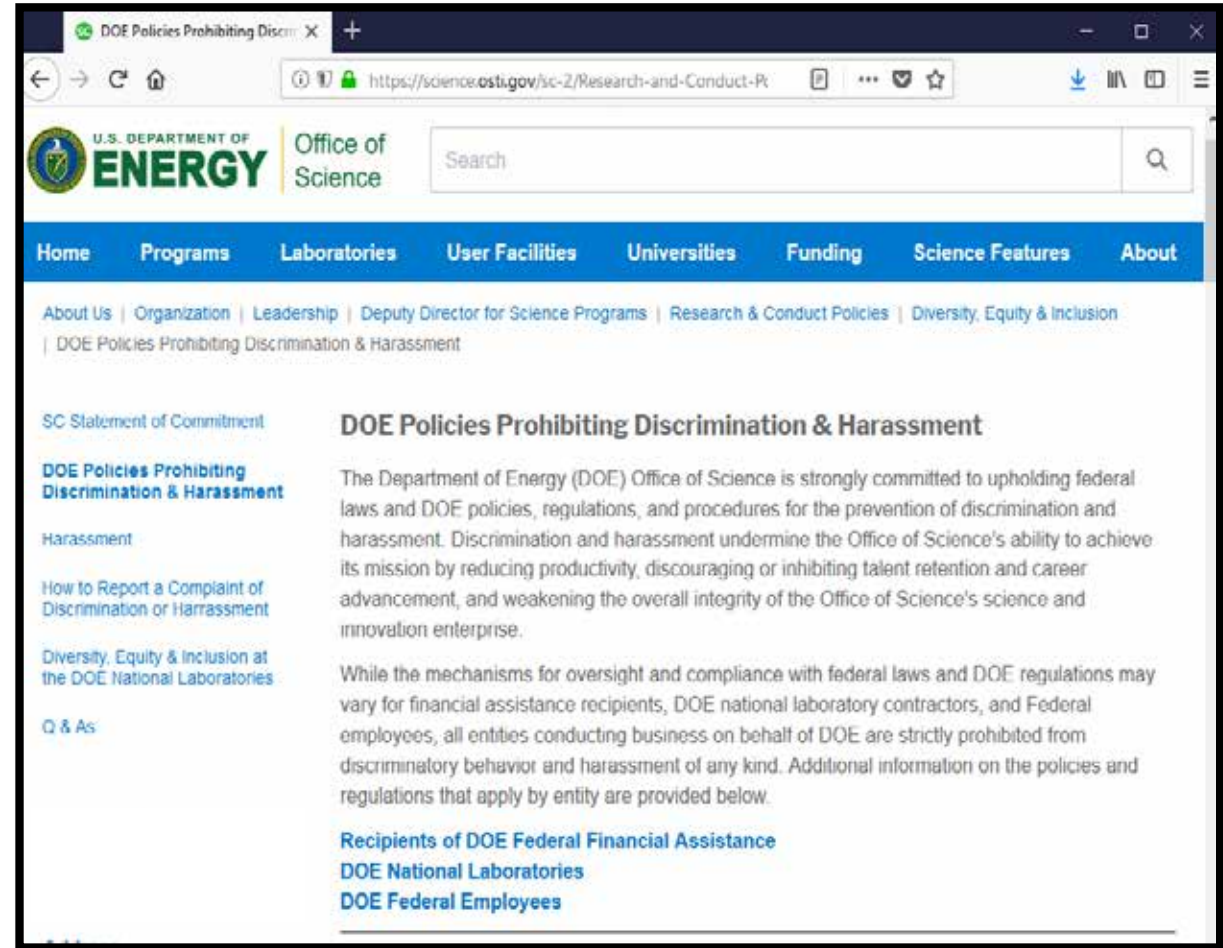
SC D&I Working Group Discussion Outcomes/Next Steps

- § Recommendations were generated from all discussion topic areas.
- § Recommendations include the development of resources and tools, guidance and training.
- § SC Associate Directors were briefed on the process and pre-decisional outcomes in mid-Sept.
- § Full report preparation is underway, including an implementation strategy, which will consider the importance, complexity, and feasibility of each recommendation.
- § Report will be delivered to Deputy Director and Associate Directors later this fall.
- § SC senior management will determine which recommendations to implement, with the goal of beginning an implementation phase by December.
- § Communications to the SC community will be a part of the rollout of any new policies and procedures that SC implements.



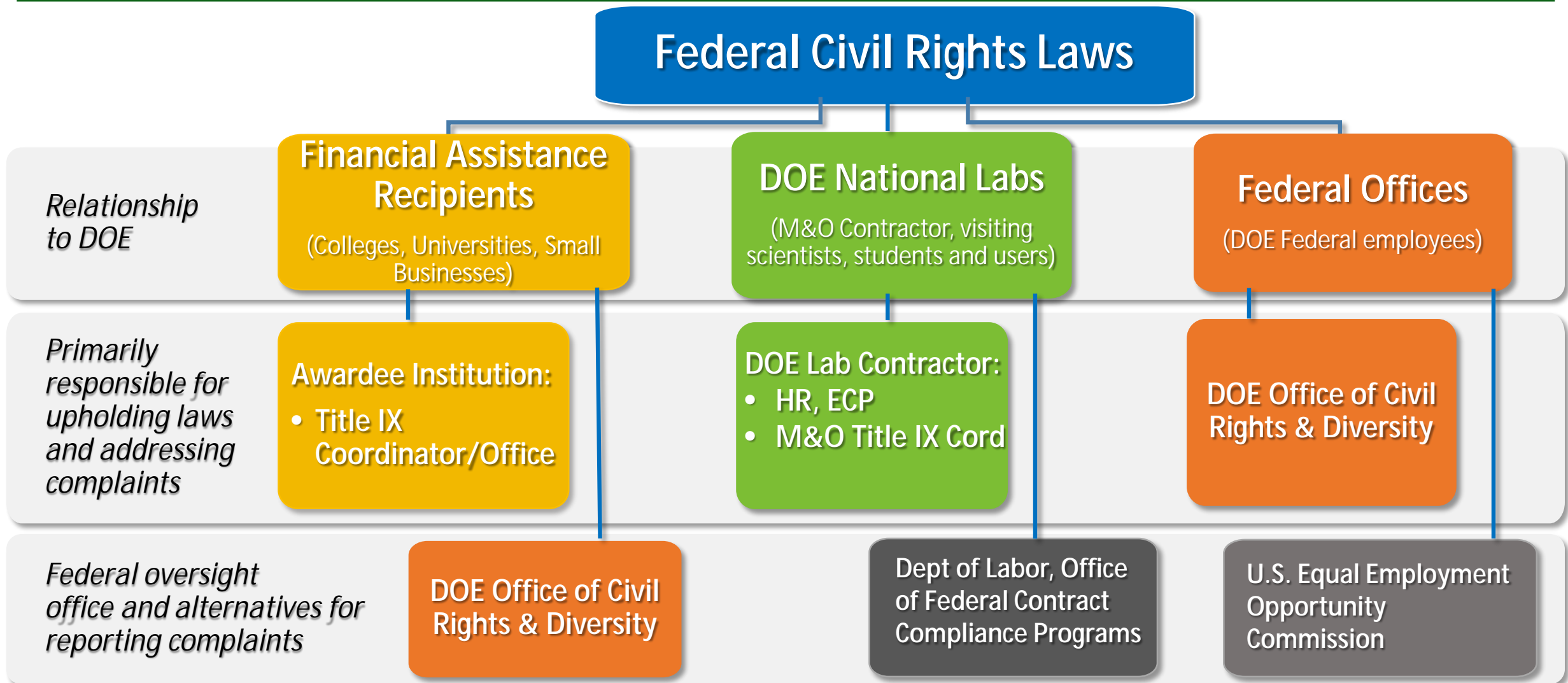
DOE Policies Prohibiting Discrimination & Harassment

- § Federal civil rights laws* are codified into DOE's regulations.
- § DOE has long had policies in place prohibiting discrimination and harassment by institutions that we fund (at academic institutions, small businesses, and DOE national labs), and by employees.
- § To bring awareness to the SC research community of DOE's policies regarding the prohibition of discrimination and harassment, SC established a website that consolidates DOE's policies and procedures as they apply to recipients of financial assistance (grants and cooperative agreements), DOE national laboratory contract staff and laboratory visitors, and DOE federal employees.



<https://science.osti.gov/sc-2/Research-and-Conduct-Policies/Diversity-Equity-and-Inclusion>

DOE Policies Prohibiting Discrimination & Harassment*



SC DEI Website: SC's Statement of Commitment

The DOE Office of Science (SC) is fully and unconditionally committed to fostering safe, diverse, equitable, and inclusive work, research, and funding environments that value mutual respect and personal integrity...

...SC's effective stewardship and promotion of diverse and inclusive workplaces that value and celebrate a diversity of people, ideas, cultures, and educational backgrounds is foundational to delivering on our mission. Harnessing a diverse range of views, expertise, and experiences drives scientific and technological innovation and enables the SC community to push the frontiers of scientific knowledge for the betterment of America's prosperity and security.

Discrimination and harassment undermine SC's ability to achieve its mission by reducing productivity, discouraging or inhibiting talent retention and career advancement, and weakening the integrity of the SC enterprise overall. SC does not tolerate discrimination or harassment of any kind, including sexual or non-sexual harassment, bullying, intimidation, violence, threats of violence, retaliation, or other disruptive behavior in the federal workplace, including DOE field site offices, or at national laboratories, scientific user facilities, academic institutions, other institutions receiving SC funding, or other locations where activities funded by SC are carried out...

...Beyond issues that may rise to the level of legal action, SC expects the scientific community, particularly those engaging in SC-sponsored activities, to always conduct themselves in a manner that is respectful, ethical, and professional. This renewed commitment is part of SC's continuing effort to identify opportunities to improve its policies, practices, and communications in furtherance of its core values and its mission.

For the full SC Statement: <https://science.osti.gov/sc-2/Research-and-Conduct-Policies/Diversity-Equity-and-Inclusion/SC-Statement-of-Commitment>



SC Coordination with DOE OCRD

If issues or complaints from grant recipients are reported to SC staff, we work with DOE's Office of Civil Rights and Diversity (OCRD) to determine what actions should be taken. We've also worked through OCRD to identify whether other Federal agencies have received complaints from the same institutions and collaborate as appropriate.

OCRD Responsibilities:

- Administers DOE policies, practices, and procedures related internal civil rights (federal employees).
- Administers DOE policies, practices, and procedures related to external civil rights with respect to DOE financial assistance recipients.
 - Conducts pre-award assurance reviews for parts of DOE to determine that award recipient currently meets the institutional requirements under Title IX.
 - Conducts post-award compliance reviews of recipient institutions.



DOE OCRD Title IX Oversight

A **Title IX Compliance Review** is a planned agency initiated investigation that assesses the civil rights and equal opportunity policies, procedures, and practices at an institution to determine compliance with civil rights statutes and regulations.

Reviews are resource intensive, take place over the period of months, include at least one on-site visit where dozens of interviews take place with university leadership, faculty, students, and postdocs, and the Title IX Coordinator.

Post-review de-brief with institutional leadership conveys any findings or issues, followed by a formal letter.

Should there be a finding of violation, recipient must respond with corrective actions.

DOE has conducted more compliance reviews than any other science agency.



Interagency Coordination

Title IX Oversight:

- § OCRD and SC coordination on Title IX Oversight with counterparts at other Federal science agencies; some joint Title IX compliance reviews.
- § OCRD coordination with Department of Education and Department of Justice.

Interagency Committees and Working Groups:

- § OSTP Director priority: Subcommittee on Safe and Inclusive Research Environments, under the NSTC Joint Committee.
- § IWG on Inclusion in STEM, under the NSTC Committee on STEM Education.



Acknowledgements

Office of the Deputy Director for Science Programs:

§ Dr. Lisa Durham (*on detail from ANL*)

§ Dr. Katie Schroeder-Spain (*AAAS Fellow*)

§ The Six SC Associate Directors

§ SC Senior Leadership

The SC D&I Working Group:

ASCR: Claire Cramer

BER: Sharlene Weatherwax; Seema Singh

BES: Bruce Garrett

FES: Curt Bolton

HEP: Alan Stone; Michael Cooke

NP: Elizabeth Bartosz

SBIR: Chris O'Gwin

WDTS: Jim Glownia

DOE Office of Civil Rights and Diversity:

§ Patricia Zarate

§ Ann Augustyn, Sharon Wyatt



SC Early Career & Workforce Development

Office of Science Workforce Development (WDTS) programs:

- § **Science Undergraduate Laboratory Internships (SULI)** - encourages undergraduate students and recent graduates to pursue science, technology, engineering, and mathematics (STEM) careers by providing research experiences at the Department of Energy (DOE) laboratories. Summer and Fall/Spring Semester Terms. **(Over 800 internships supported annually.)**
- § **Community College Internship (CCI)** – places community college students at DOE national laboratories to work with laboratory scientists or engineers on projects related to the SC and DOE mission technological activities. Summer and Fall/Spring Semester Terms. **(Over 100 internships supported annually.)**
- § **Office of Science Graduate Student Research fellowships (SCSGR)** - to prepare graduate students for science, technology, engineering, or mathematics (STEM) careers critically important to the DOE Office of Science mission, by providing graduate thesis research opportunities at DOE laboratories. The SCSGR program provides supplemental funds for graduate awardees to conduct part of their thesis research at a host DOE laboratory/facility (3 to 12 months) in collaboration with a DOE laboratory scientist within a defined award period. Two solicitation per year. **(Over 100 research awards supported annually.)**
- § **Visiting Faculty Program (VFP)** - to increase the research competitiveness of faculty members and their students at institutions historically underrepresented in the research community. Selected university/college faculty members collaborate with DOE laboratory research staff on a research project of mutual interest. Faculty member participants may invite up to two students (one of which may be a graduate student) to participate in the research project. Summer Term. **(Over 60 faculty and 40 students supported annually.)**

SC Early Career Research Program

Office of Science Early Career Research Program

- § **Purpose:** To support individual research programs of outstanding scientists early in their careers and to stimulate research careers in the disciplines supported by the Office of Science.
- § **Eligibility:** Within 10 years of receiving a Ph.D., either untenured academic assistant or associate professors on the tenure track or full-time DOE national lab employees.
- § **5-Yr Awards:** University grants ~\$150,000/yr; National lab awards ~\$500,000/yr
- § The program is sponsored by all six SC Research Program Offices through core research.

The Early Career Research Program was established in FY 2010, with subsequent annual solicitations.

- § SC receives ~ 600 - 800 proposals per solicitation. Number of awards made each year are subject to overall appropriations, and other factors (*e.g. FY 2014 new requirement to fully forward funds grants over \$1M*).
- § In FY 2019, SC made 73 awards (46 to university PIs, 27 to DOE laboratory PIs)

DOE SC Office of High Energy Physics

Cosmic Frontier Program

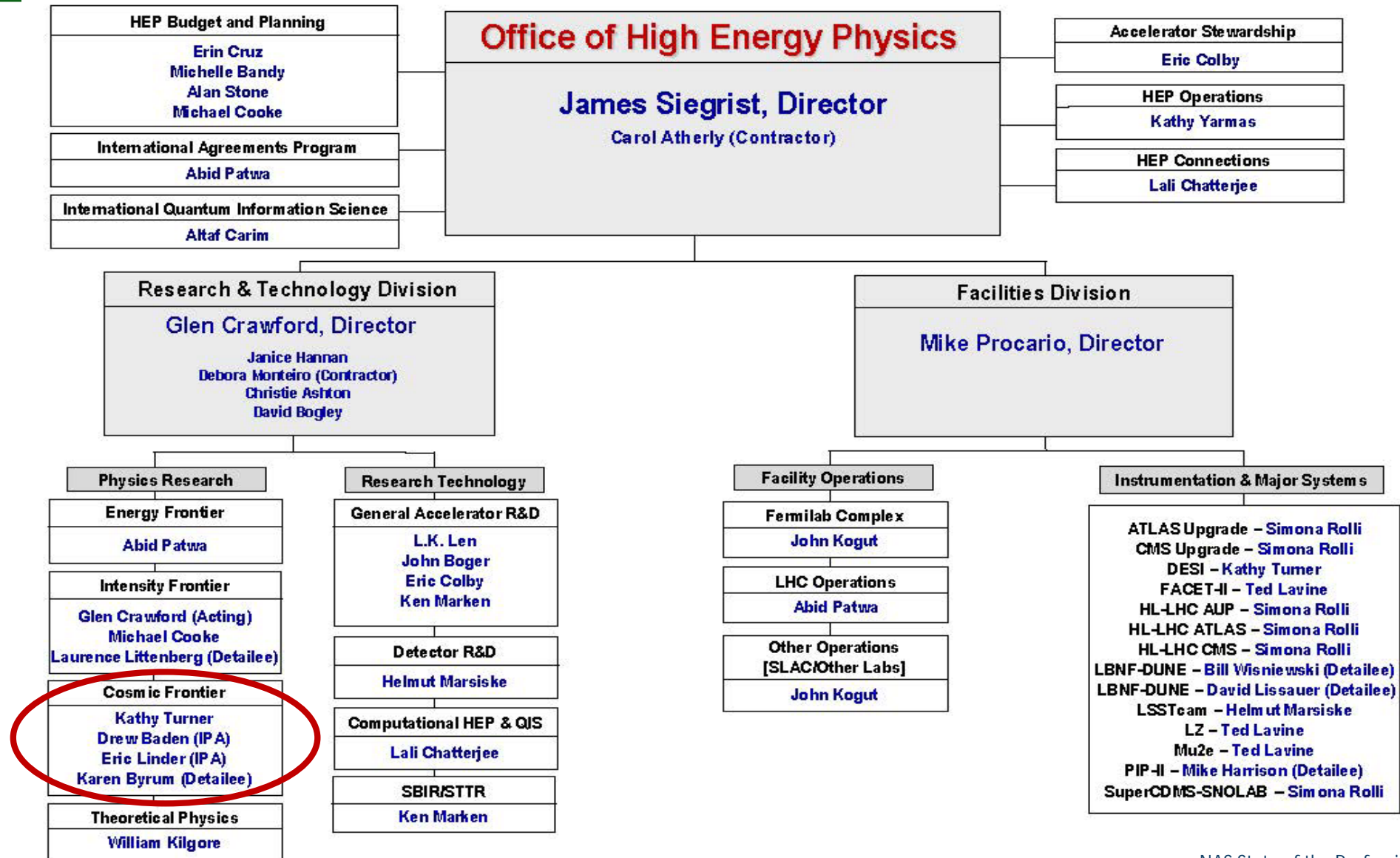
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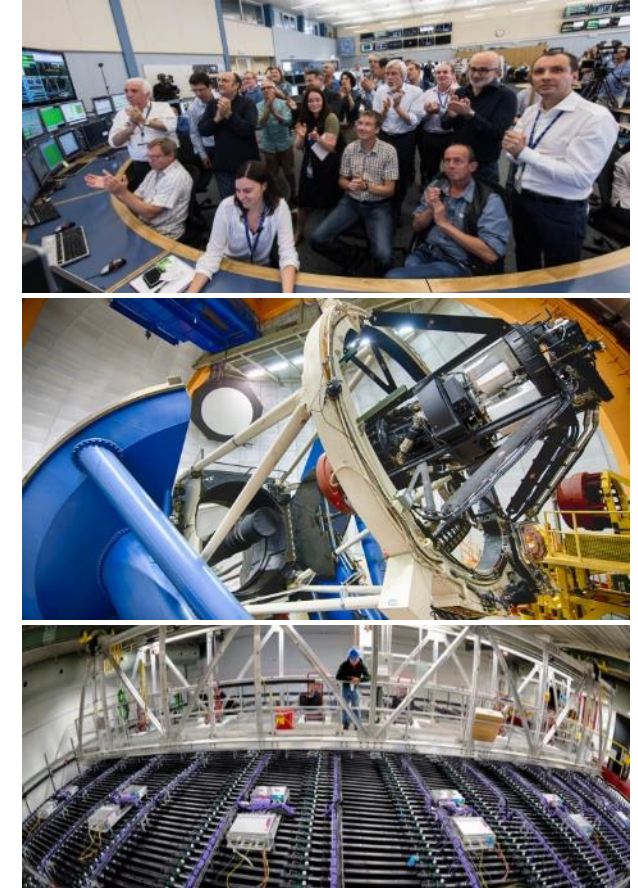
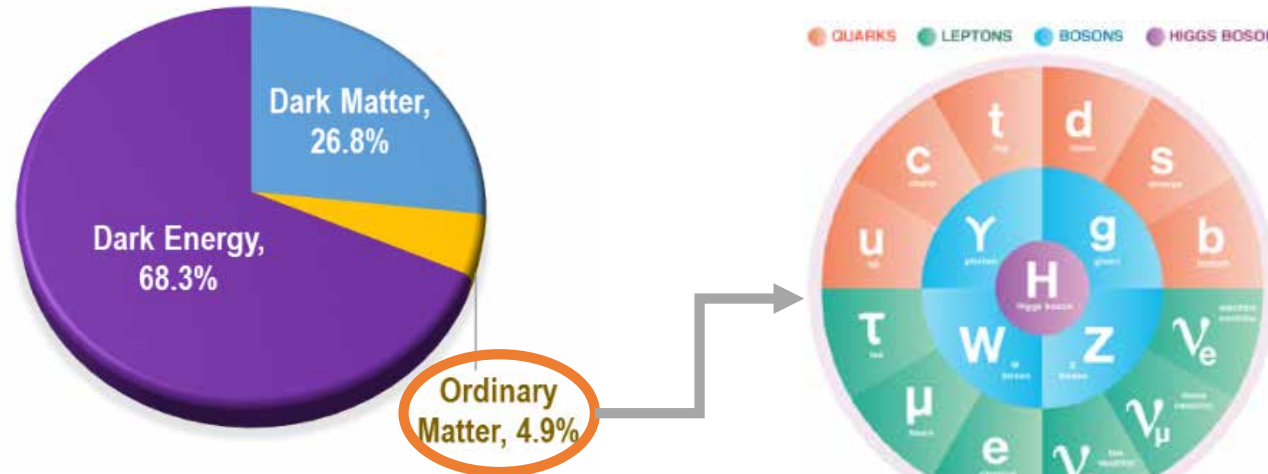
DOE SC Office of High Energy Physics



Office of High Energy Physics (HEP) Program Mission

... is to understand how the universe works at its most fundamental level:

- Discover the elementary constituents of matter and energy
 - Probe the interactions between them
 - Explore the basic nature of space and time
- The DOE Office of High Energy Physics fulfills its mission by:
 - Building **projects** that enable discovery science
 - Operating **facilities** that provide the capability for discoveries
 - Supporting a **research** program that produces discovery science



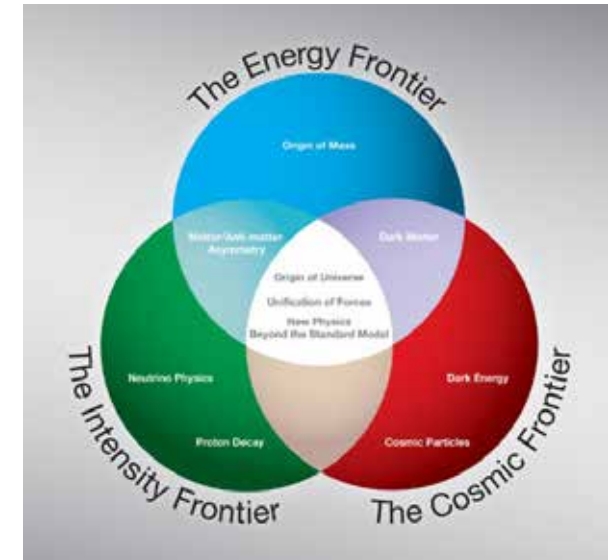
HEP Program Layout

HEP is carried out along 3 Frontiers: Advancements at all 3 frontiers are needed to achieve the long term goals of the field.

à HEP is primarily a Particle Accelerator based program: Energy & Intensity Frontiers

à Cosmic Frontier is an increasingly important area for discovery.

Experiments use naturally occurring data to provide additional input to the Standard Model picture: [Cosmic Acceleration](#) (Dark Energy, Inflation), search for [Dark Matter](#) particles, [New Physics](#) (neutrino properties, relic particles, etc)



Areas of study to fully carry out the program:

- } Theoretical research
- } High Performance Computing à Exascale; Artificial Intelligence/Machine-learning
- } State-of-the-Art Detector and Accelerator technology development
- } Quantum Information Science (QIS) is a quickly-growing area.

Cosmic Frontier – Activities by Year

à Cosmic Frontier has evolved over the last decade from primarily operations of small experiments, and following Astro2010/P5, to fabrication of mid-size projects, which are now moving into operations

| Year | Funded Activity | Dark Matter | Dark Energy | Cosmic, Gamma | CMB |
|---------|---------------------|--|------------------------|---|--------|
| FY10-14 | Operating | SuperCDMS-Soudan, COUPP, DMTPC, DarkSide-50, LUX | DES(2013), eBOSS(2014) | AMS(2011), Auger, FGST-LAT, HAWC(2013), VERITAS | SPTpol |
| FY10-14 | Design, Fabrication | ADMX-G2, LZ, SuperCDMS-SNOLAB | DESI, LSST | | SPT-3G |
| FY15 | Operating | SuperCDMS-Soudan, COUPP, DMTPC, DarkSide-50, LUX | DES, eBOSS | AMS, Auger, FGST-LAT, HAWC, VERITAS | SPTpol |
| FY15 | Design, Fabrication | ADMX-G2, LZ, SuperCDMS-SNOLAB | DESI(CD2), LSST(CD2) | | SPT-3G |
| FY16 | Operating | SuperCDMS-Soudan, COUPP, DMTPC, DarkSide-50, LUX | DES, eBOSS | AMS, Auger, FGST-LAT, HAWC, VERITAS | SPTpol |
| FY16 | Design, Fabrication | ADMX-G2, LZ(CD2), SuperCDMS-SNOLAB | DESI, LSST | | SPT-3G |
| FY17 | Operating | ADMX-G2, LUX | DES, eBOSS | AMS, Auger, FGST-LAT, HAWC | SPT-3G |
| FY17 | Design, Fabrication | LZ, SuperCDMS-SNOLAB | DESI, LSST | | |
| FY18 | Operating | ADMX-G2 | DES, eBOSS | AMS, FGST-LAT, HAWC | SPT-3G |
| FY18 | Design, Fabrication | LZ, SuperCDMS-SNOLAB(CD2) | DESI, LSST | | |
| FY19 | Operating | ADMX-G2 | DES, eBOSS | AMS, FGST-LAT, HAWC | SPT-3G |
| FY19 | Design, Fabrication | LZ, SuperCDMS-SNOLAB | DESI, LSST | | CMB-S4 |
| FY20 | Operating | ADMX-G2, LZ | DESI | AMS, FGST-LAT, HAWC | SPT-3G |
| FY20 | Design, Fabrication | LZ, SuperCDMS-SNOLAB | DESI, LSST | | CMB-S4 |

Critical Decision 2 (CD2) à baseline

Funding – Research, Projects, Operations

§ The HEP model is for a science collaboration to carry out an experiment in all phases to deliver the best science results. Science mission oriented.

§ **Research** funding at universities (grants) and HEP labs supports scientists to participate in ALL experimental phases à design, fabrication, operations, data planning & analysis.

- Research funding priority is to support scientific efforts directly in line with HEP program & project priorities, responsibilities & science goals.
- Maximize the number of research personnel (e.g. students and postdocs) supported on its awards.
- Review panels look to see close engagement within the experimental collaborations, with significant roles fulfilling responsibilities.
- High proposal success rate when PI shows long term commitments to our experiment/project/science as a closely integrated member of the collaboration, e.g. from concept to design, construction, operation, analysis. Not funded for one particular study or effort here and there.

§ **Design & Project Fabrication** funding supports engineering, technical, M&S for project design & fabrication.

§ **Experimental Operations** funding supports engineering, technical, M&S for data-taking, processing and management.

HEP Research Grant Statistics – Cosmic Frontier

| | | FY12 | FY13 | FY14 | FY15 | FY16 | FY17 | FY18 | FY19 |
|--------------------------|--------------|--------|--------|-------------|-------------|--------------|--------------|-------------------|--------------------|
| Cosmic \$M request Y1-3 | | \$3.30 | \$7.70 | \$7.50 | \$6.80 | \$7.80 | \$24.60 | \$27.61 | \$18.28 |
| Cosmic \$M request Y1 | | \$3.30 | \$7.70 | \$7.50 | \$6.80 | \$7.80 | \$7.60 | \$14.32 | \$5.22 |
| Cosmic \$M funded Y1 | | \$1.60 | \$3.40 | \$4.4 w/FFF | \$3.3 w/FFF | \$4.3M w/FFF | \$4.7M w/FFF | \$5.4M w/FFF | \$3.4M w/FFF |
| Cosmic - proposal counts | | | | | | | | | |
| | Received | 11 | 33 | 29 | 27 | 43 | 31 | 30 | 23 |
| | Reviewed | 10 | 28 | 28 | 27 | 36 | 26 | 28 | 20 |
| | Funded | 6 | 18 | 19 | 14 | 21 | 18 | 23 | 17 |
| | Success rate | 60% | 64% | 68% | 52% | 58% | 69% | 82% | 85% |
| Cosmic CR - PI counts | | | | | | | | | |
| | Received | 21 | 61 | 40 | 43 | 65 | 49 | 56 | 36 |
| | Reviewed | 20 | 54 | 38 | 43 | 55 | 43 | 54 [38/9/7] | 34 [19/13/2] |
| | Funded | 13 | 27 | 25 | 21 | 25 | 26 | 38 [28/6/4] | 27 [15/10/2] |
| | Success rate | 65% | 50% | 66% | 48% | 45% | 60% | 70% [74/67/58] | 79% [79/77/100] |

[Sr/Jr/RS]

Early Career Awards – Cosmic Frontier

FY 2019:



Tim Eifler
Dark Energy



Scott Hertel
Dark Matter



Elisabeth Krause
Dark Energy

Crosscutting programs



Cora Dvorkin
CMB theory



Peter Sorensen
Dark Matter detectors

FY 2018:



Alexie Leauthaud
Dark Energy



Hee-Jong Seo
Dark Energy

Crosscutting programs



Aritoki Suzuki
CMB detectors



Daniel Bowring
Dark matter QIS



Benjamin Safdi
Dark matter theory

Early Career Statistics – Cosmic Frontier

| | FY10 | FY11 | FY12 | FY13 | FY14 | FY15 | FY16 | FY17 | FY18 | FY19 |
|-------------------|------|------|------|------|------|------|------|------|------|------|
| # received - Univ | 11 | 8 | 12 | 16 | 6 | 7 | 7 | 8 | 11 | 13 |
| # received - Lab | 10 | 4 | 7 | 9 | 7 | 5 | 6 | 5 | 5 | 4 |
| # funded - Univ | 2 | 1 | 2 | 1 | 1 | 0 | 1 | 1 | 2 | 3 |
| # funded - Lab | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |

Crosscutting programs

FY 2017:



Anja von der Linden
Dark Energy



Michael Schneider
Dark Energy



Zeeshan Ahmed
CMB detectors



Marilena LoVerde
Neutrino theory