



U.S. Department of Energy Office of Accelerator R&D and Production

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**International Workshop on Future Linear Colliders, Industry Forum
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U.S. DEPARTMENT OF
ENERGY

Office of
Science

Accelerators are critical tools for physical sciences research



Linac Coherent Light Source



Advanced Light Source



Fermilab Accelerator Complex



Advanced Photon Source



National Synchrotron Light Source II



Relativistic Heavy Ion Collider



FACET Beam Test Facility

More than 54%* of SC's nearly 36,000 users perform research at an accelerator-based facility



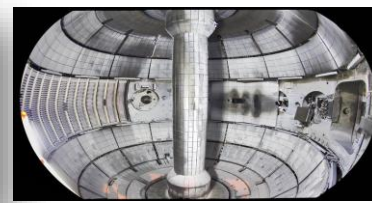
BNL Accelerator Test Facility



Stanford Synchrotron Radiation Light Source



DIII-D



NSTX-U



Spallation Neutron Source



ATLAS



Continuous Electron Beam Accelerator Facility

FY 2019: 19,337 users (54% of 35,771 total SC users) were at accelerator-based SC facilities.
FY 2020: COVID reduced the number of users coming to physical facilities significantly, down to 47% (15,700) of 33,500 users.

Next generation facilities will continue to need the close collaboration of multiple labs and multiple Office of Science Programs



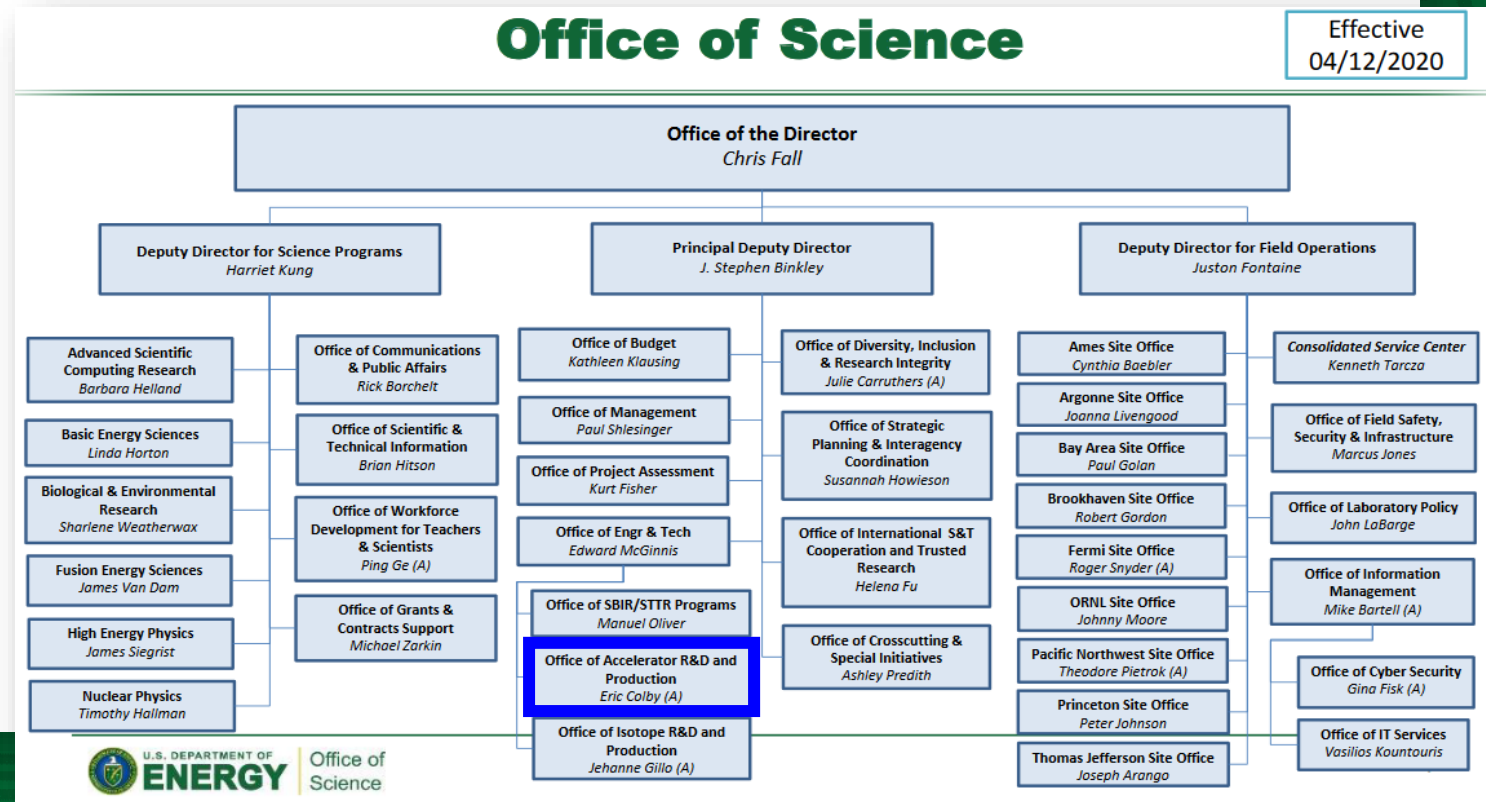
This map shows the principal collaborating institutions for **LCLS-II**

Establishment of ARDAP

- ARDAP* (SC-24.2) was established April 12, 2020 in recognition of the central importance of accelerators and related technologies to the current and future scientific capabilities stewarded by SC programs. Activities will be tightly integrated with those in BES, FES, HEP, and NP.

and Laser

* ARDAP = Office of Accelerator R&D and Production

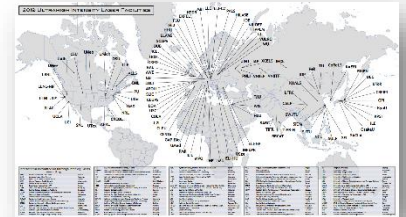


ARDAP Mission

...is to coordinate and make accelerator R&D and production investments that are aimed at addressing Accelerator Science & technology (AS&T) gaps to help ensure that future U.S. accelerator-based physical science R&D priorities will be met.

- ARDAP will fulfill its mission by:
 - Maintaining a strategic picture of AS&T needs and worldwide competition;
 - Facilitating coordination of Programmatic AS&T R&D investments across SC;
 - Investing in selected cross-cutting AS&T areas;
 - Providing a system engineering perspective for SC facility projects;
 - Supporting workforce development, when needed;
 - Maturing key AS&T technologies and developing capable U.S. vendors;
 - Transitioning accelerator technology to broader uses.

Objective: Ensure a robust pipeline of next-generation AS&T to support physical sciences research while providing technology advances and industrial strength that position the U.S. to lead the world for decades to come.

A table with multiple columns and rows, likely representing investment data for various accelerator projects. The table is partially obscured by a redaction box.

Prioritizing Accelerator R&D with the Community's Help

- High Energy Physics
 - P5, GARD Panel, Roadmaps; Snowmass 2021



- Accelerator Stewardship
 - BRNs, RFIs, NAS



- Basic Energy Sciences
 - BRNs and Workshops



- Nuclear Physics
 - LRP and Panel

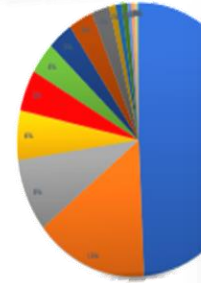
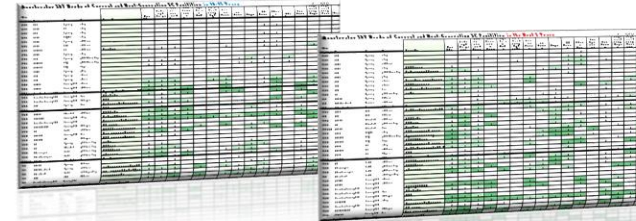


- Fusion Energy Sciences
 - Prioritization Panel, LRP, and NAS Decadal



Charting a future for accelerator technology

- **Inventory of R&D Needs for DOE Facilities**
 - Completed in 2018, refreshed in 2020
 - What are the facilities of the next decade
 - What AS&T R&D is needed and when
- **AS&T Supplier Survey**
 - December 2020
 - What critical AS&T was purchased, from whom, and how much
 - Covered current projects and recent operations
 - Analysis underway to identify critical dependencies
- **Request for Information on Creating a Robust AS&T Ecosystem**
 - January 2021, (closed yesterday)
 - Status and Future of the Market
 - Workforce Development
 - Models for Technology Transfer
 - Defining an Optimal Federal Role



DEPARTMENT OF ENERGY

Creating a Robust Accelerator Science & Technology Ecosystem

AGENCY: Office of Accelerator R&D and Production, Office of Science, Department of Energy (DOE).

ACTION: Request for information (RFI).

SUMMARY: The Office of Accelerator R&D and Production, as DOE's coordinating office for accelerator R&D to support the Office of Science research mission, is requesting information on the current state of the accelerator technology market, and for information about successful public-private-partnership models.

DATES: Written comments and information are requested on or before March 15, 2021.

ARDAP's first task is to develop an SC-wide AS&T Strategy

A substantive input process has started that will result in an AS&T investment strategy for the next 10-20 years:

- **Identifying high-level goals**
 - Plans for DOE's major facilities and future facility construction
 - Plans for other USG facilities
- **Analyzing domestic capability and plans**
 - Near- and long-term AS&T advances and actions needed
 - Virtual site visits to key institutions
 - Data calls, roundtables, RFIs, workshops (virtual)
 - Workforce and development pipelines
- **Analyzing international capabilities and plans**
 - Capabilities and plans for scientific facilities, AS&T R&D, and industrialization
- **Studying technology transfer examples through case studies**
 - Examples of public-private-partnerships, organizations, ecosystems, ...

