

2019 National School on Neutron and X-ray Scattering

June 16-29, Argonne and Oak Ridge National Laboratory

PROPOSAL WRITING TIPS

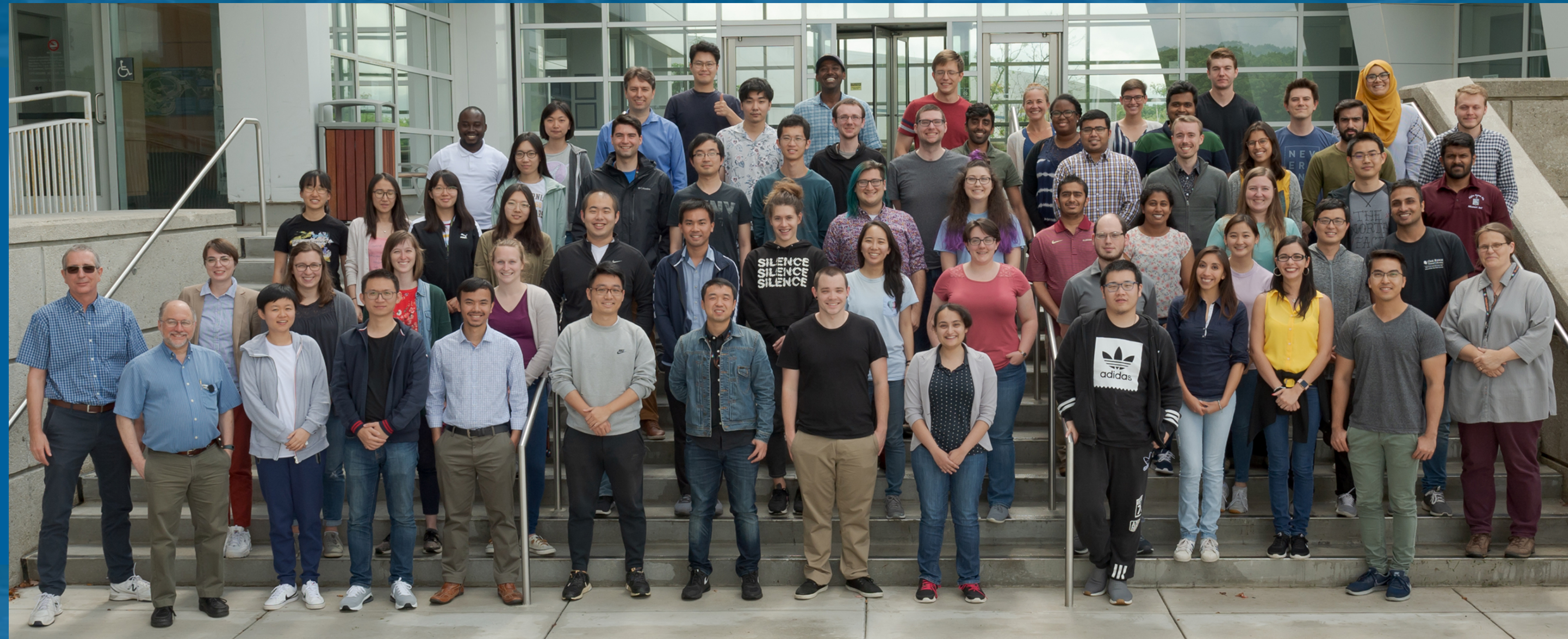
STEPHAN ROSENKRANZ
Neutron and X-ray Scattering Group
Materials Science Division
Argonne National Laboratory



2019 National School on Neutron and X-ray Scattering

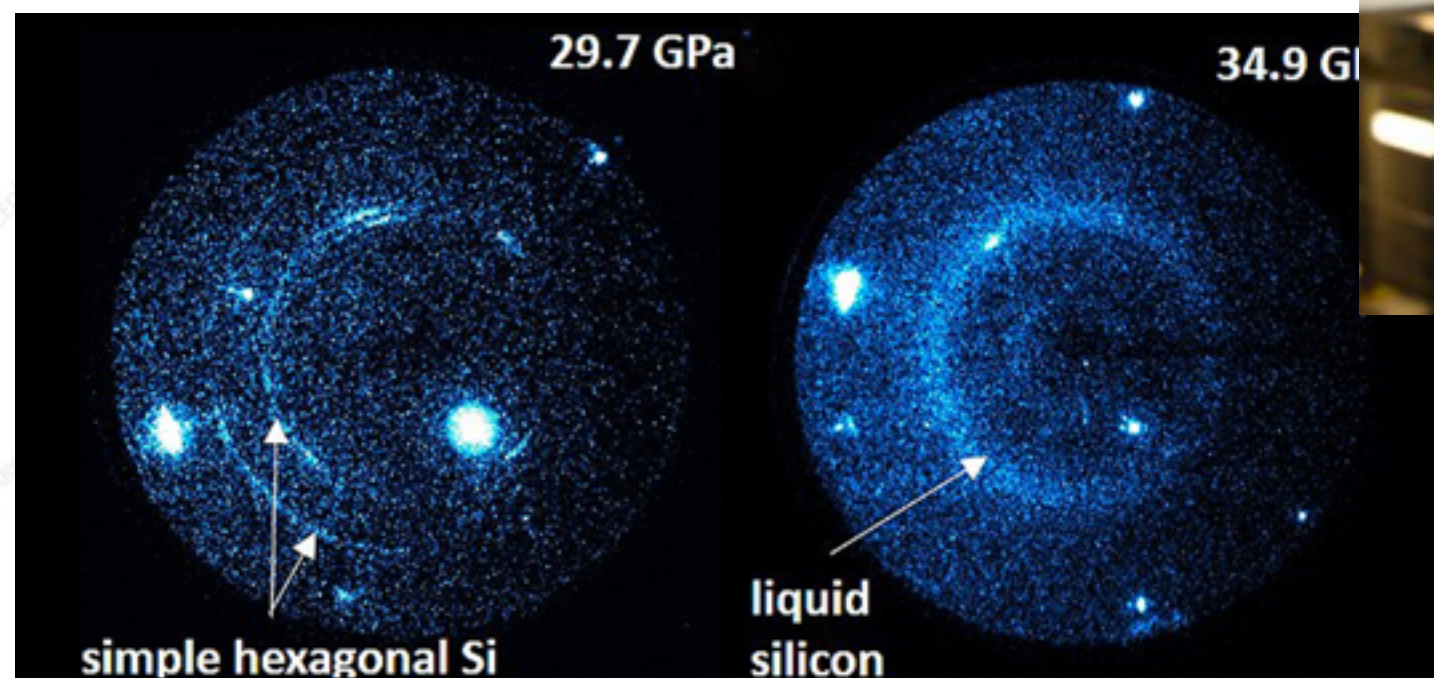
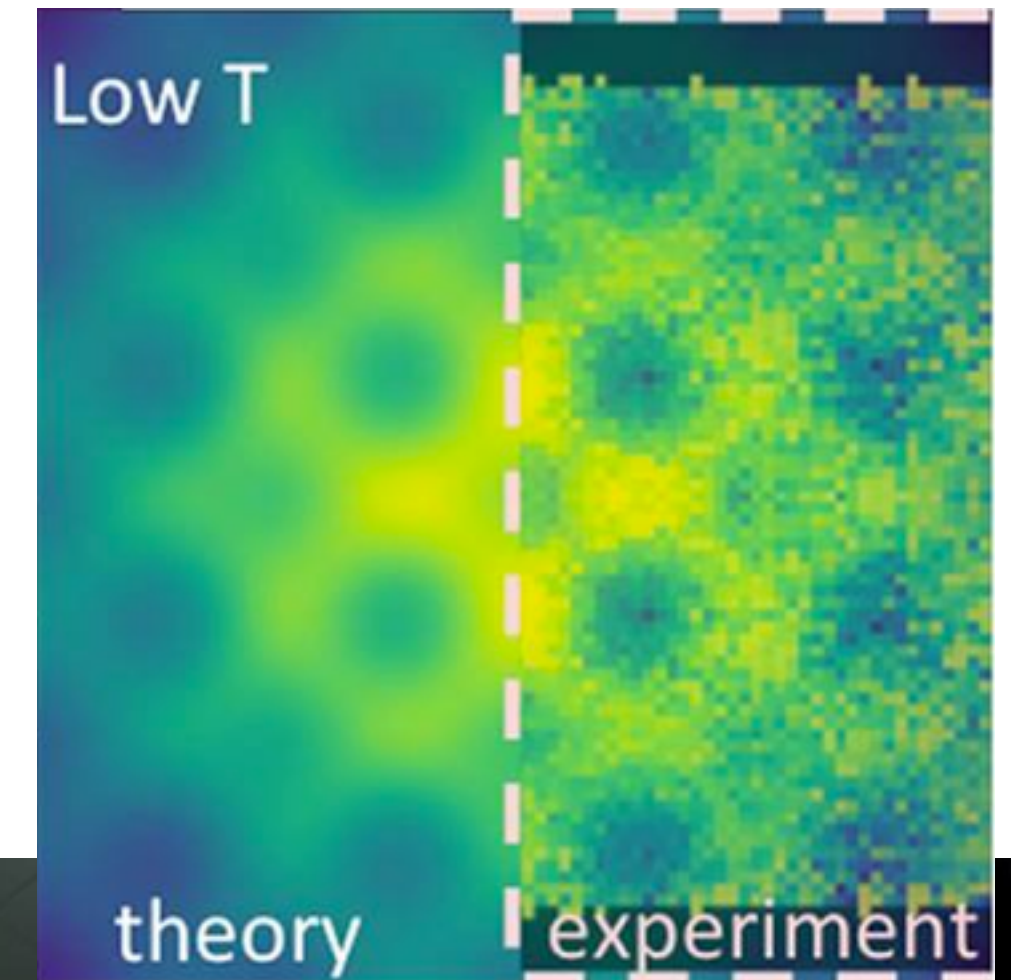
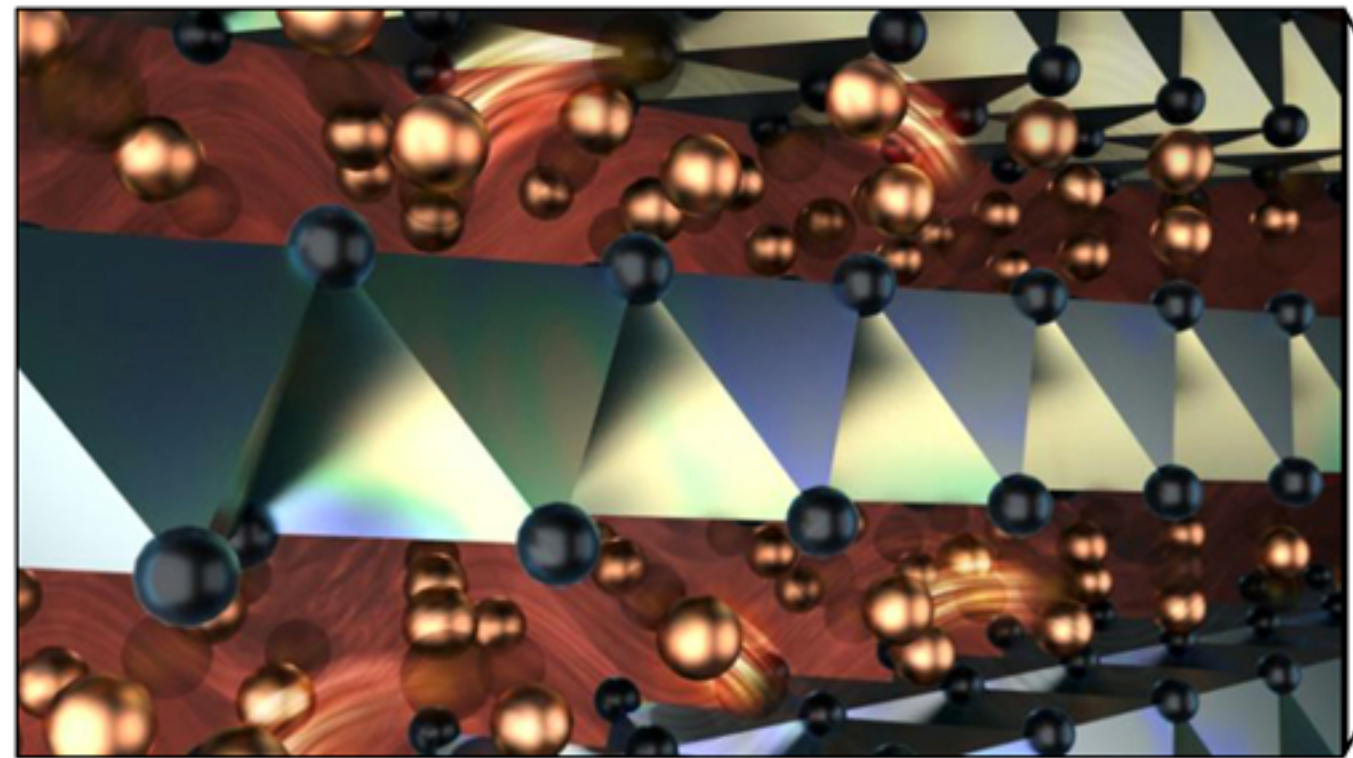
June 16-29, Argonne and Oak Ridge National Laboratory

PROPOSAL WRITING TIPS

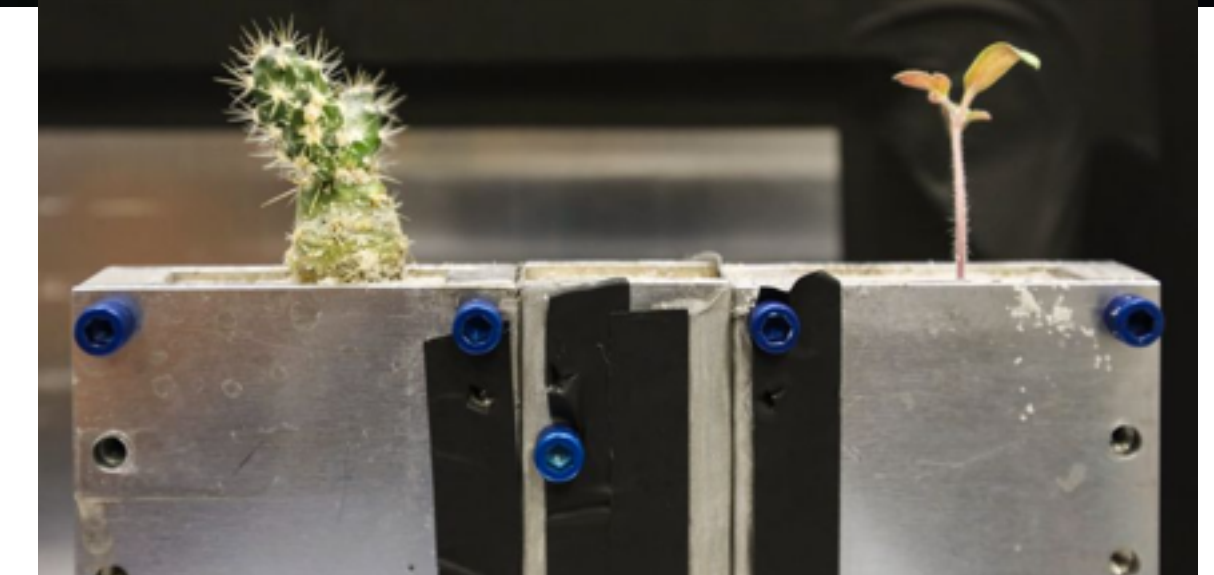
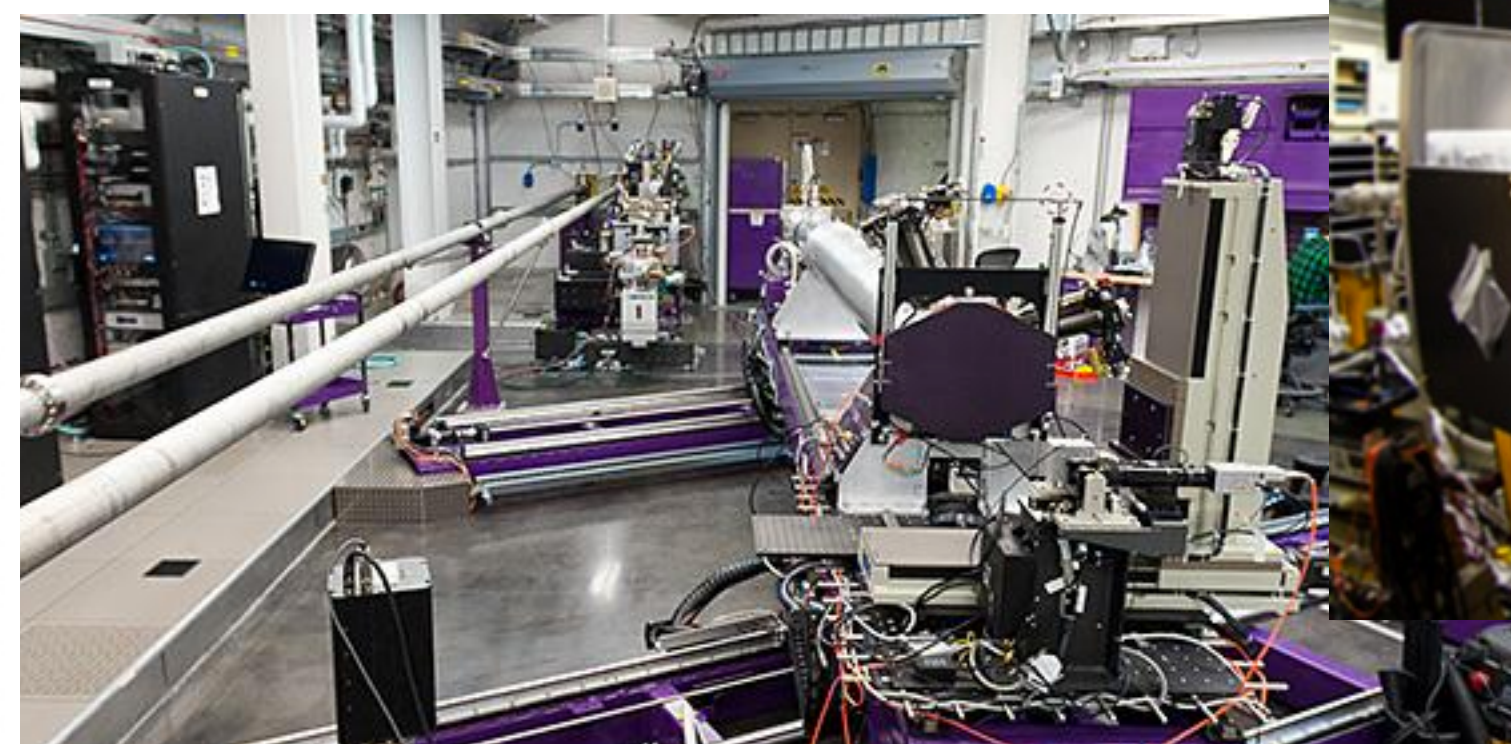


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WHAT DO SCIENTISTS WANT?

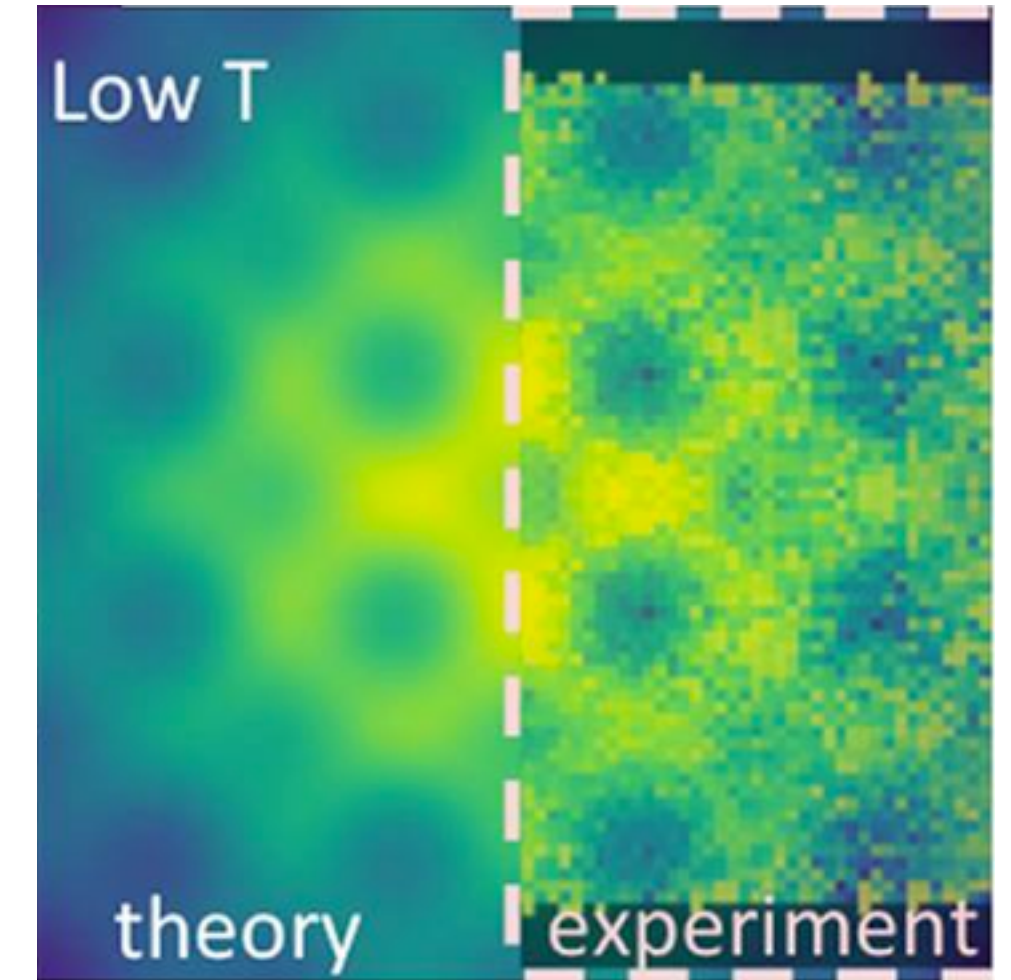


Neutrons Investigate Tomatoes for Insights Into Interplant Chatter



WHAT DO SCIENTISTS DO?

- Need to get funding, beamtime
- Call for proposals
 - write proposals
 - review proposals
 - give presentations
- (try to) get (more) funding, beamtime



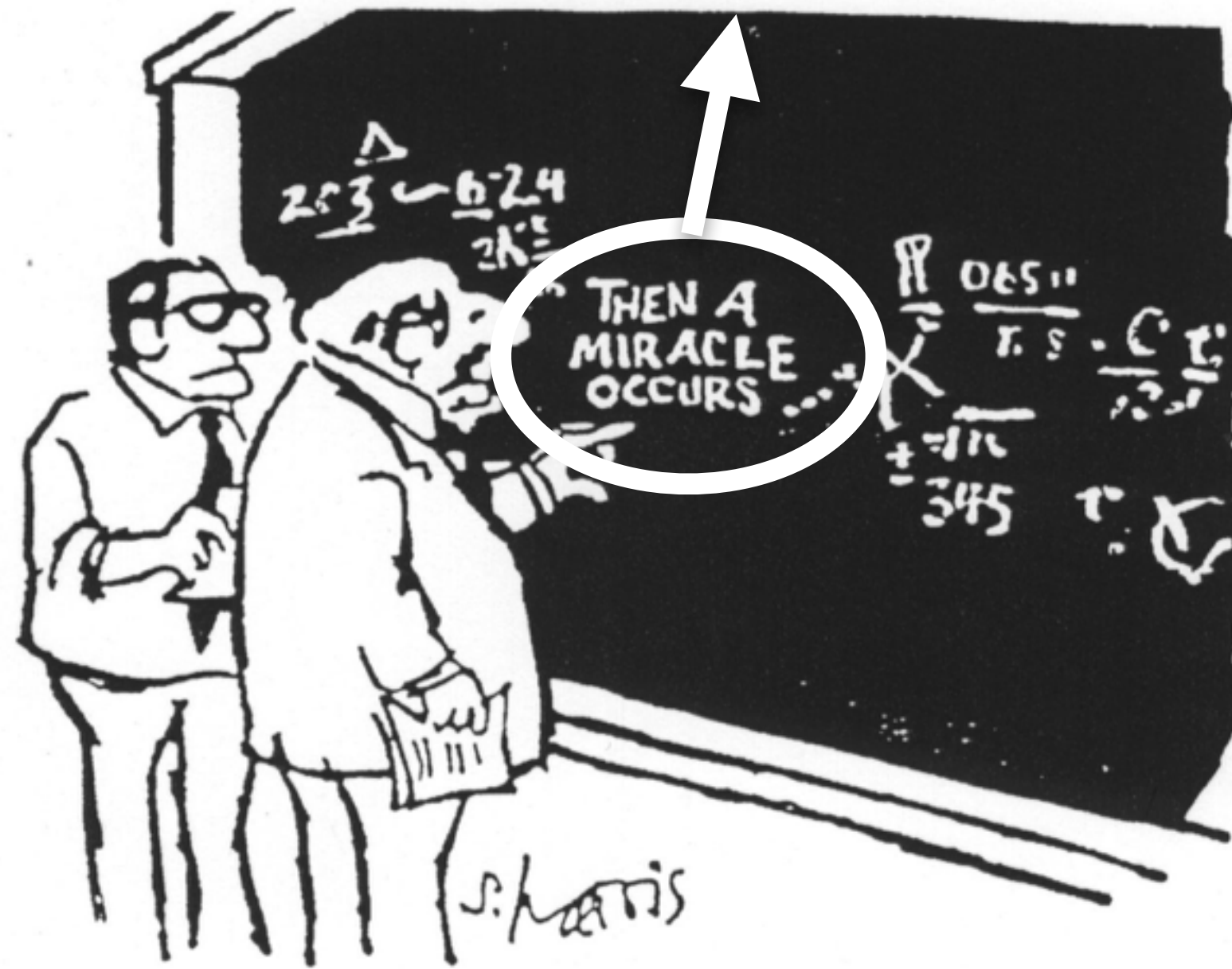
Neutrons Investigate Tomatoes for Insights Into Interplant Chatter



WHAT DO SCIENTISTS DO?

Then a Miracle occurs

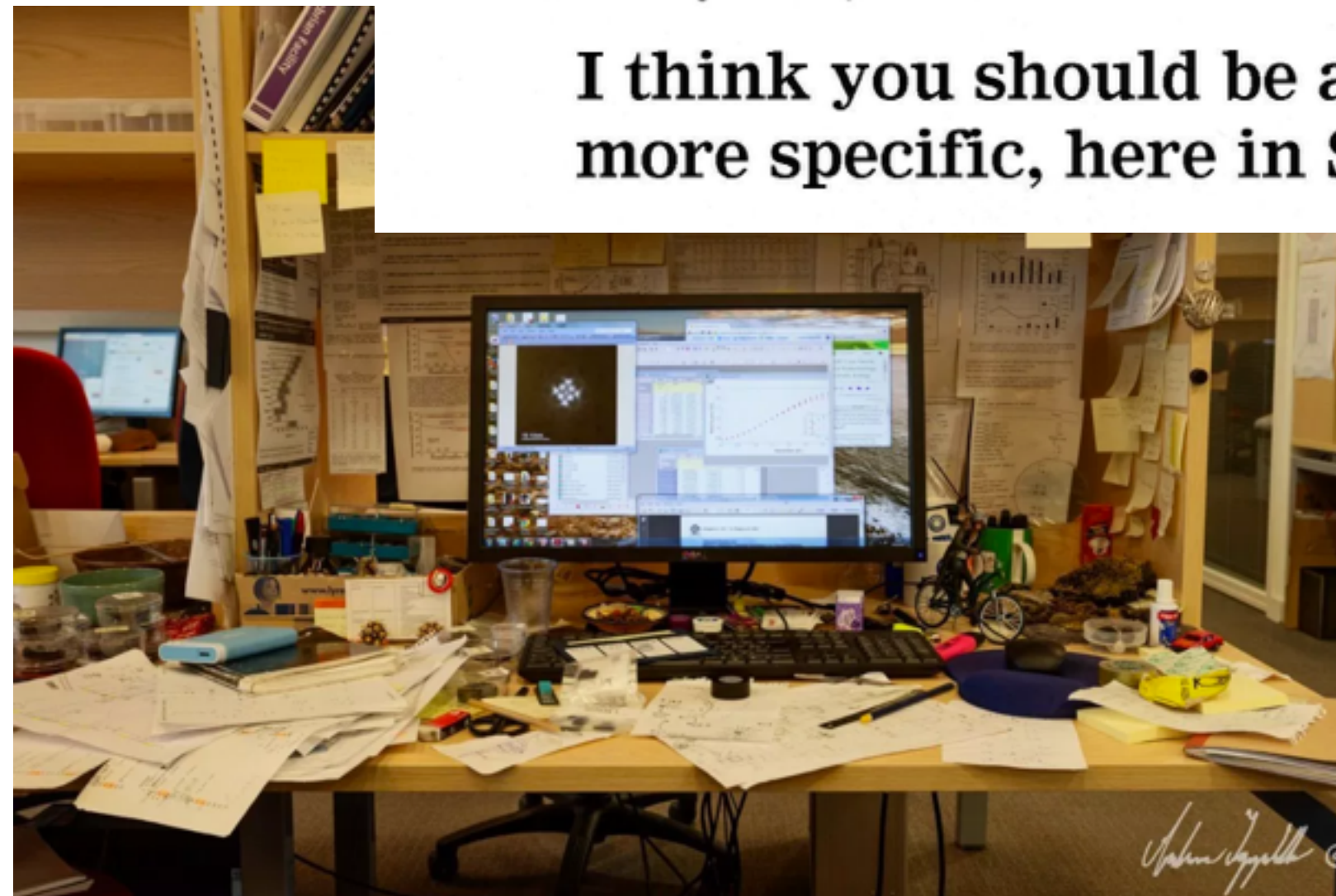
- Need to get funding, beamtime
- Call for proposals
 - write proposals
 - review proposals
 - give presentations
 - (try to) get (more) funding, be



I think you should be a little more specific, here in Step 2



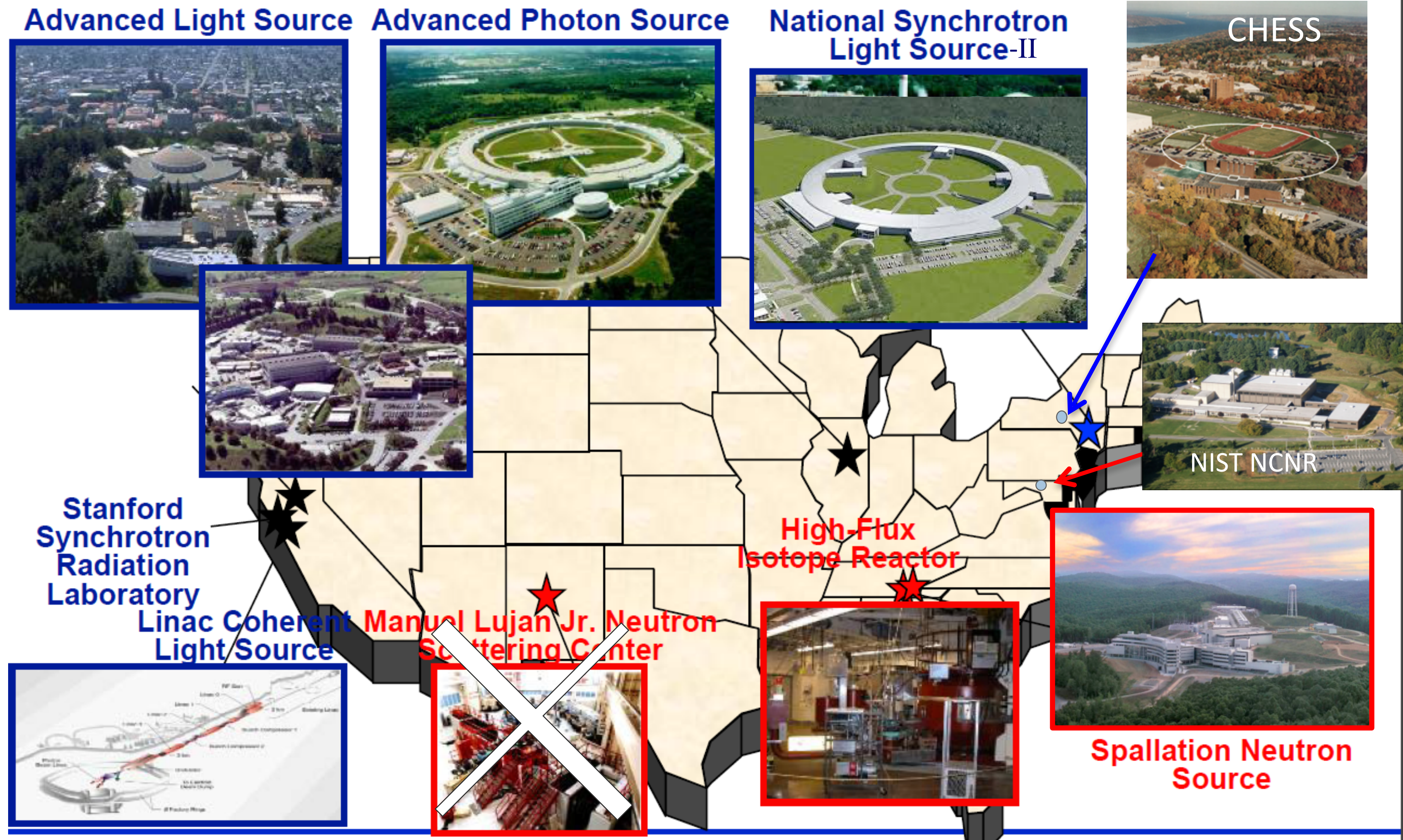
"Still nothing. You sure this is the best computer we have?"



X-RAY AND NEUTRON SOURCES AVAILABLE WORLDWIDE

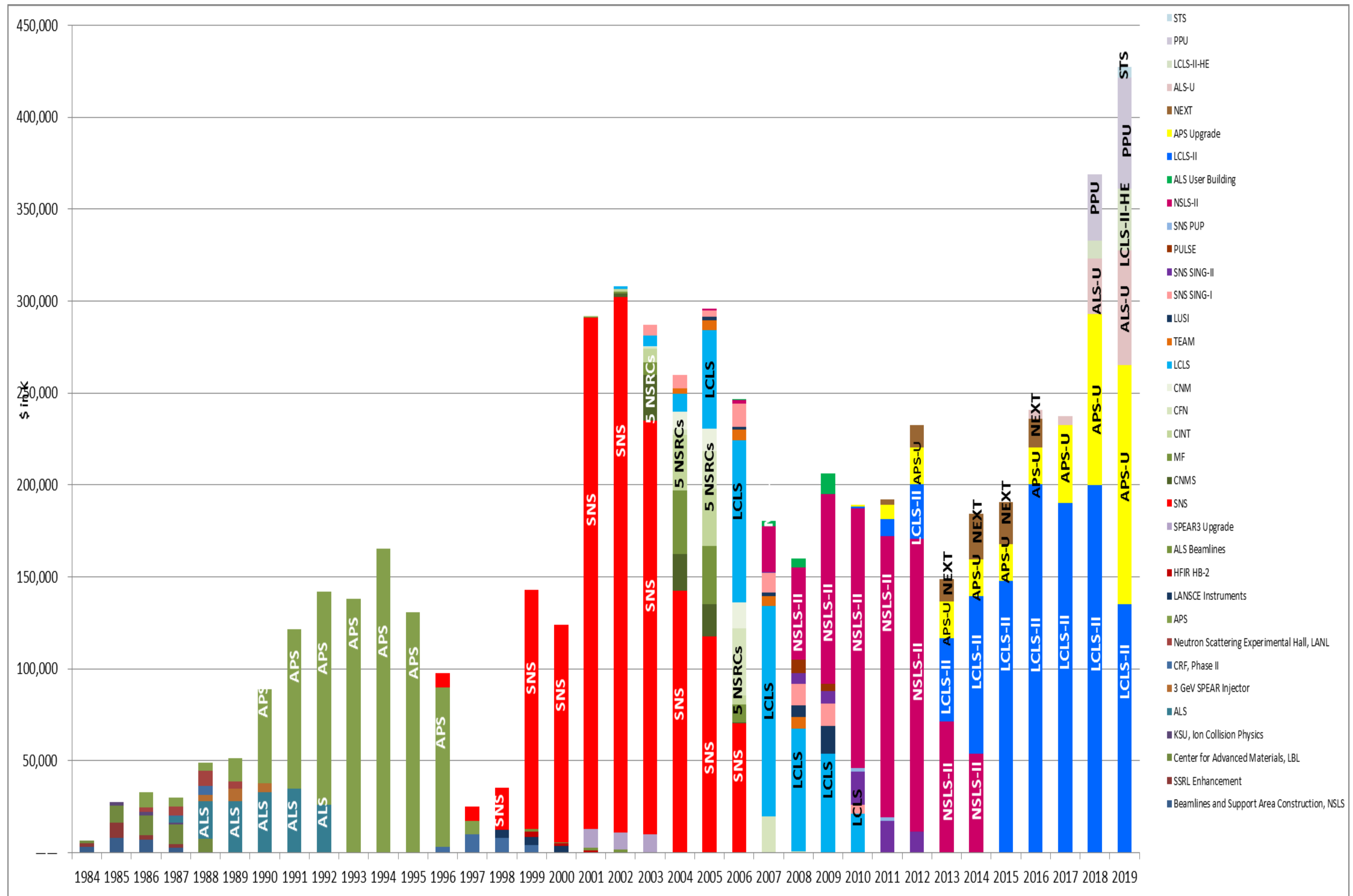
- **Light Sources summarized at www.lightsources.org**
 - ~61 facilities: 48 synchrotrons + 13 free electron lasers (FELs)
 - European Synchrotron Radiation Facility (ESRF), Grenoble, France
 - SPRING-8, Japan
 - PETRA III, Germany
 - CLS, SLS, Shanghai, DIAMOND, BESSYII, SOLEIL, Taiwan, Pohang, ...
 - XFEL.EU, SACLA, FLASH, ...
- **Neutron Sources summarized at www.neutronsources.org**
 - ~50 research centers:
 - Institut Laue-Langevin (ILL), Grenoble, France
 - ISIS UK
 - JSNS at J-PARC, Japan
 - China Spallation Neutron Source, Dongguan (~2018)
 - European Spallation Source (ESS), Lund, Sweden (~2019)

U.S. X-RAY AND NEUTRON SOURCES (MOST DOE-BASIC ENERGY SCIENCES)



Also 5 DOE Nanoscience Centers (BNL, SNL/LANL, ORNL, ANL, LBNL)
3 DOE Electron Microscopy Centers (ANL, LBNL, ORNL)

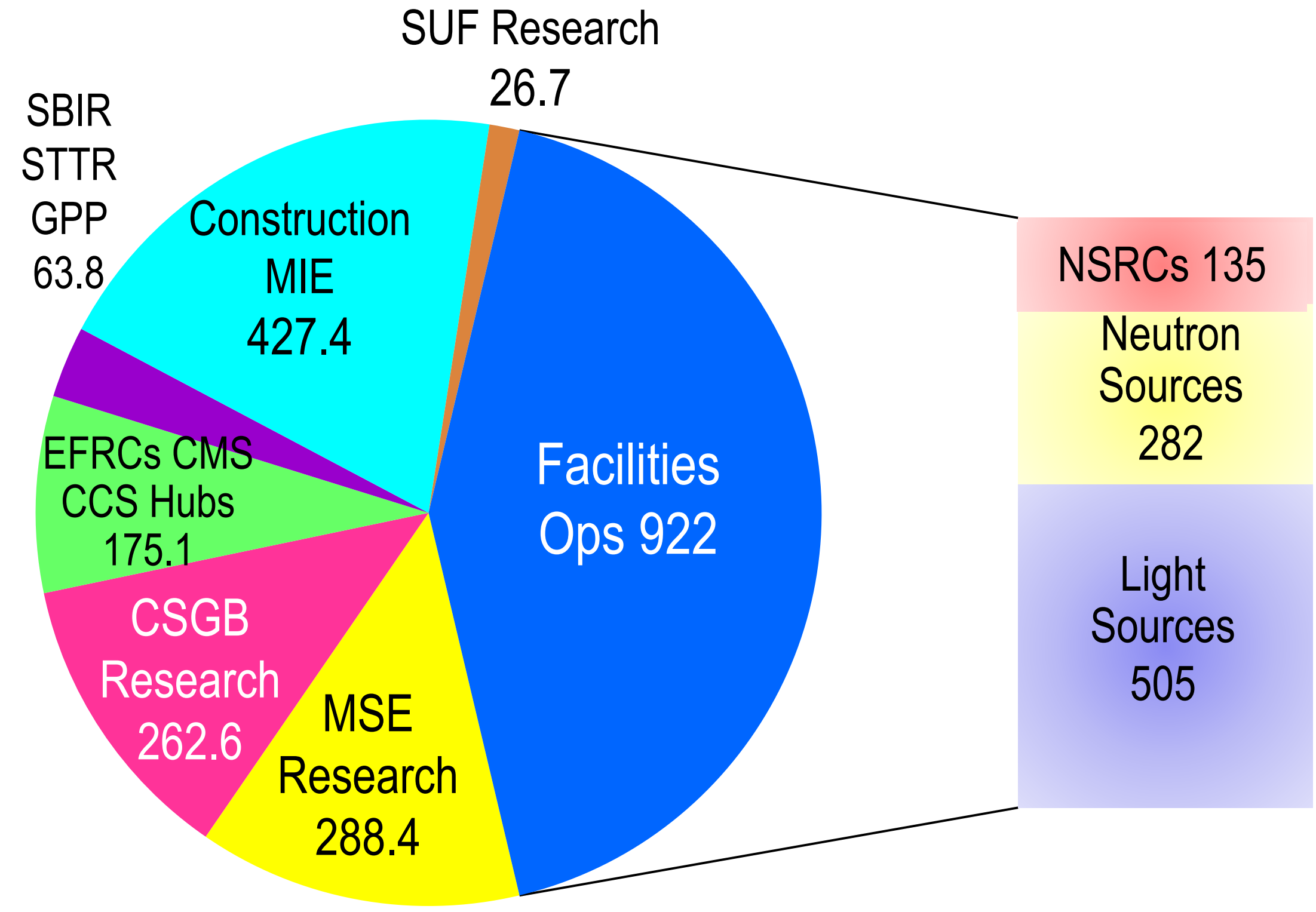
BES Construction/MIE Funding Profile 1984 – 2019



FY 2019 BES Budget: \$2166.0M (+\$76M or +3.6% from FY 2018)

Research programs

- Core Research will emphasize quantum information science, data science for discovery, and BRN topics (\$551M).
- Computational Materials and Chemical Sciences continue (\$26M)
- Energy Frontier Research Centers continue (\$110M)
- Funding continues for Energy Innovation Hubs (JCAP & JCESR) (\$39M).



Scientific user facilities

- Operations of 12 facilities at nearly 100% optimal level (\$922M; $\Delta=+\$23.4M$)

Construction/MIE* $\Delta=+\$58.4M$

- Last year of funding, LCLS-II (\$135.4M)
- APS-U (\$130M), LCLS-II-HE (\$34M), ALS-U (\$62M), PPU (\$60M)
- One new start: STS (\$6M)

*includes OPC

Research at APS Contributes to 2018 Chemistry Nobel Prize

Scientific Achievement

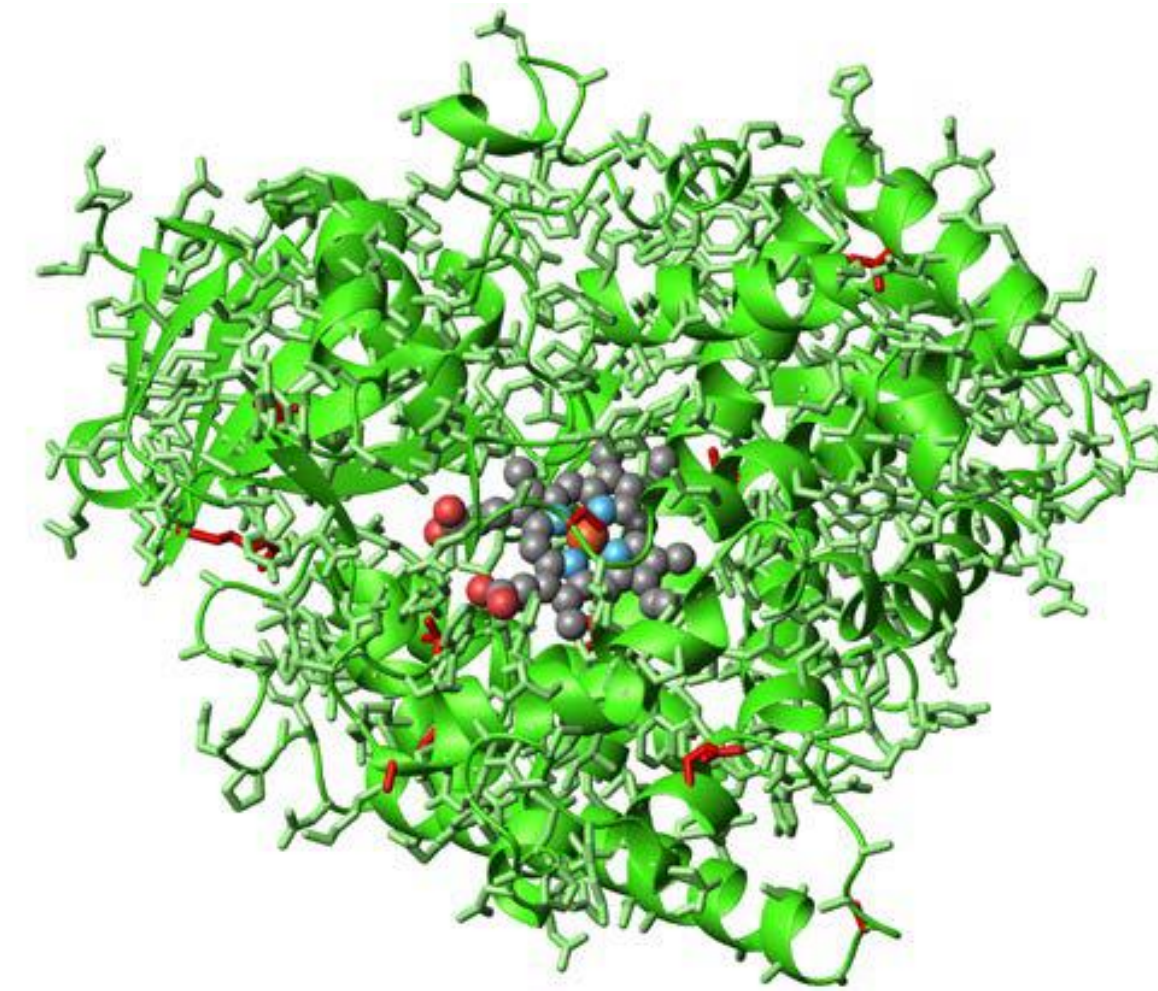
Dr. Frances Arnold (California Institute of Technology) was 1 of 3 2018 Chemistry Nobel awardees for work showing how “directed evolution” can be used to develop proteins or enzymes that have desired enzymatic activity, which can be used to produce chemicals, biofuels, and pharmaceuticals.

Significance and Impact

“The structures were critically important to advancing and understanding the overall evolutionary design successes for which Dr. Arnold has been recognized,” said Matthew Redinbo, William R. Kenan Distinguished Professor of Chemistry, Biochemistry, Microbiology, and Genomics at the University of North Carolina at Chapel Hill, who collaborated on the study.

Research Detail

As part of this research, samples of the enzymes that were created were studied utilizing the General Medical Sciences and Cancer Institutes beamline 23-ID-D at the Advanced Photon Source (APS), a U.S. Department of Energy Office of Science User Facility.



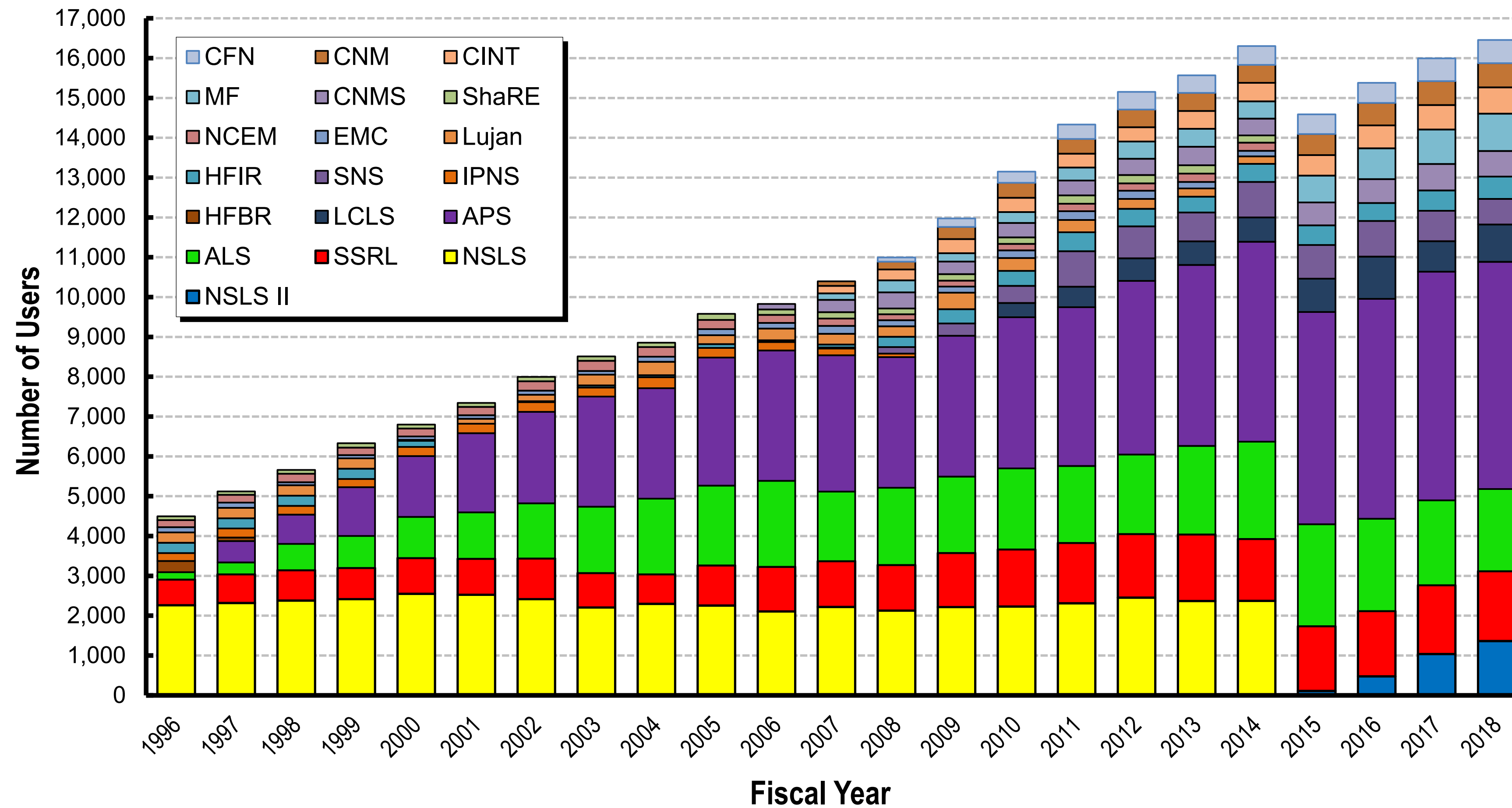
Structure of an evolved biocatalyst for cyclopropanation, determined at the APS.

See: P.S. Coelho et al., Nat. Chem. Biol. **9**, 485 (2013). DOI: 10.1038/nchembio.1278
Contact: frances@cheme.caltech.edu

Scientific Background on the Nobel Prize in Chemistry 2018, “DIRECTED EVOLUTION OF ENZYMES AND BINDING PROTEINS,” 3 OCTOBER 2018, <https://www.nobelprize.org/uploads/2018/10/advanced-chemistryprize-2018.pdf>

Work performed at Argonne National Laboratory

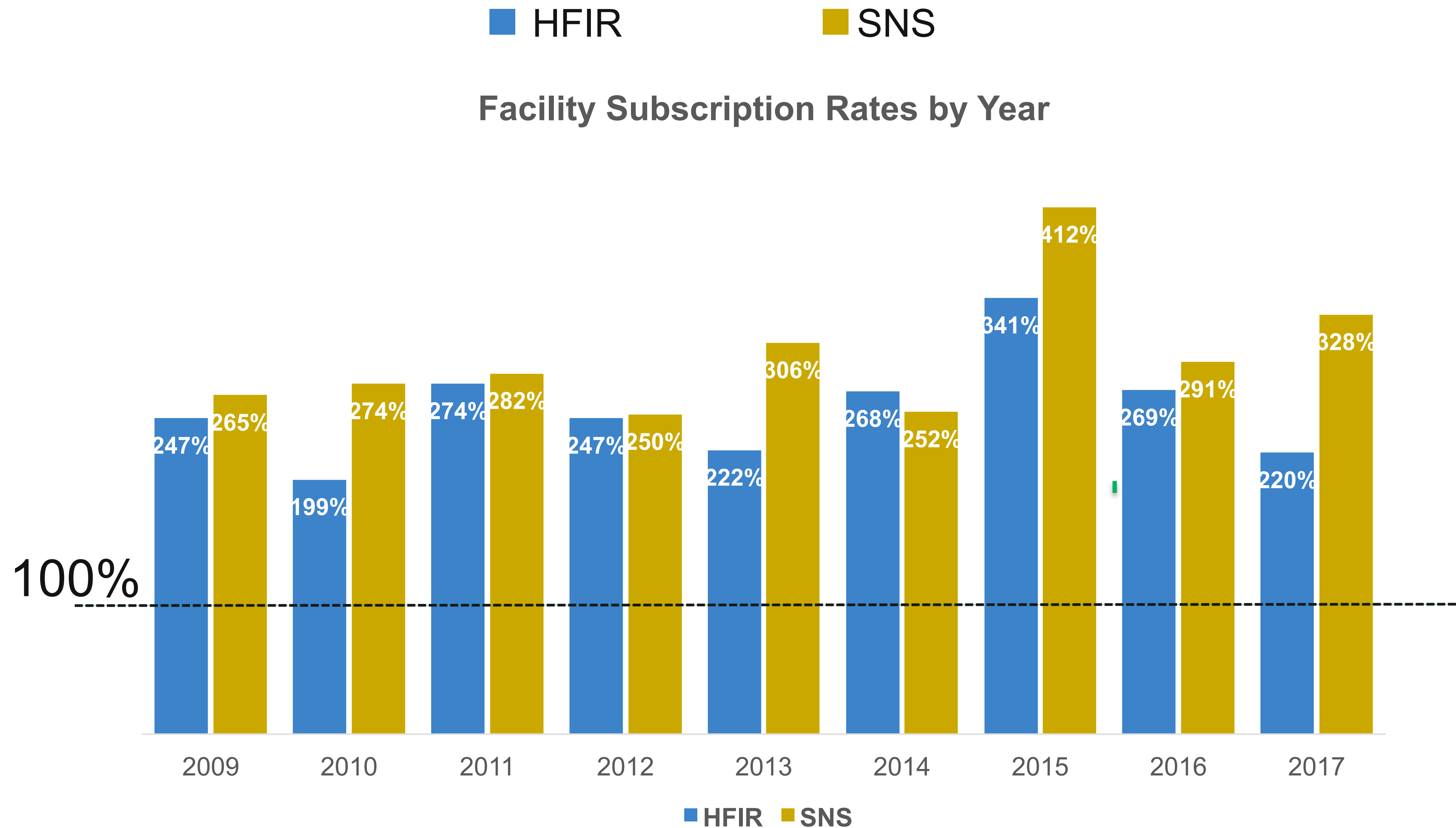
BES User Facilities Hosted >16,000 Users in FY 2018



More than 300 companies from various sectors of the manufacturing, chemical, & pharmaceutical industries conducted research at BES scientific user facilities. Over 30 companies were Fortune 500 companies.

BOTH SNS AND HFIR ARE OVERSUBSCRIBED

Getting beam time is not guaranteed



BASICS OF THE FACILITY PROPOSAL SYSTEMS

How do I get beam time at a User Facility?

- All DOE, NIST, and NSF neutron and x-ray sources offer access to beam time through an experimental proposal system. “General Users (GU)”.
- Proposal submission is done through a web-based application. When and how often proposals are submitted varies by facility.
 - APS, NSLS-II three times (“cycles”) per year.
 - SNS/HFIR, ALS, LCLS two times per year
- All proposals are peer-reviewed and rated, and beam time is allocated based on the scores of these reviews. Once time has been allocated, the beamline staff schedule the proposals.

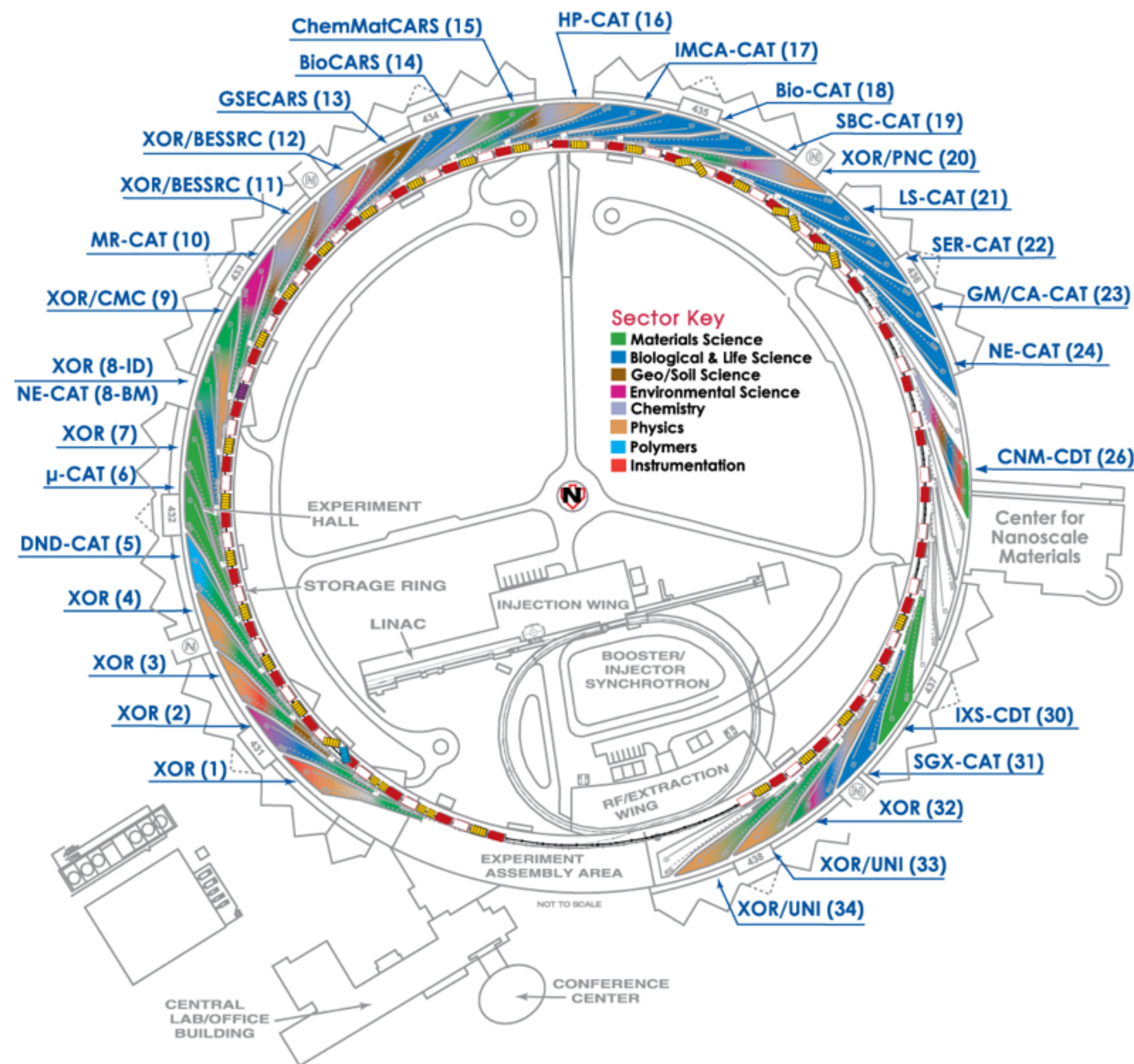
AMOUNT OF **GENERAL USER** TIME AVAILABLE

APS/NSLS/SSRL/ALS

- ✓ All beamlines offer **GU** beam time.
- ✓ Most DOE/NSF funded beamlines provide 80-100% of their time to general users.

SNS/HFIR

- ✓ Amount varies by instrument.
- ✓ ~75% of time will be for general users.



For most, you can search facility websites by technique or by beamline. Quality of proposal websites varies.

PROPOSAL DEADLINES

X-ray sources (cycles/yr)

APS (3)

ALS (2)

NSLS-II (3)

LCLS (~2)

SSRL (3)

CHESS

Deadlines

July 5, 2019 (every 4 months)

Sept 4, 2019 (every 6 months)

Sept 30, 2019

down for upgrade

May 1, Aug 1, Nov 1

July 8, 2019 (8 am)

Neutron sources

HFIR (2)

SNS (2)

NIST-NCNR (2)

currently not operational

soon

~ October and April

- These are hard deadlines.
- APS at Friday midnight, central time (12:01 → next cycle)

Get Started with Assistance From the Instrument Scientists

- Study facilities and instrument web pages
- **Contact an Instrument Scientist to discuss your research**
 - What is the research problem?
 - Which instrument(s) are appropriate? (scores?)
 - How mature is the research project (risk, size)?
 - What is the material – sample composition, form, size, availability?
 - What are the experimental conditions
 - temperature, pressure, magnetic field, *etc* ?
 - What will be measured?
 - Probability of success? Impact? Significance?
 - How will results be presented and to whom?
 - What is the timeline?



Instrument Scientists Assist First-time and Returning Users

- **Provide technical advice, guidance, and assistance**
 - Instrument options
 - Sample and experiment preparation
 - Number of experiment days
 - Logistics (scheduling, transporting and storing samples)
 - Proposal preparation tips and assistance
 - Experiment team members
 - Data analysis
 - Publication considerations
- **Consider beamline staff as collaborators**

Submitting a proposal

Facilities generally have link on home page

NSLS-II

BROOKHAVEN NATIONAL LABORATORY *National Synchrotron Light Source II* U.S. DEPARTMENT OF ENERGY

Home About For Users & Staff For Industry Beamlines Research News & Publications People Intranet

Machine Status

Operating Schedule

User Guide

National Synchrotron Light Source II
NSLS-II is a state-of-the-art 3 GeV electron storage ring. The facility offers scientific and industrial researchers an array of beamlines with x-ray, ultraviolet, and infrared light to enable discoveries in clean and affordable energy, high-temperature superconductivity, molecular electronics, and more. [Overview »](#)

The next deadline for NSLS-II beam time proposals and beam time requests is **September 30, 2019.** | [Submission Details](#)

Become a Facility User
Beamlines at the National Synchrotron Light Source II are open to academic and industrial users for scientific research. All research proposals are subjected to peer review and ranked against competing proposals based on scientific merit.

[Apply for Beam Time](#)

NSLS-II Beamlines
NSLS-II's beamlines and experimental stations offer unique, cutting-edge research tools for a wide variety of scientific areas. All beamlines are organized into six science programs, based on the research capabilities and expertise they offer.

[Beamline Directory](#)
[Science Programs](#)

Announcements
[Sign up to receive NSLS-II Machine Operating Status Updates by email](#)

Seminars [Full Calendar](#)
JUN 21 Today
NSLS-II Friday
Lunchtime Seminar
"Recent progress on the electronic structure study of the heavy-fermion Ce-115 compounds"
Presented by Qiuyun Chen, Science and Technology on Surface Physics and Chemistry Laboratory, China

NSLS-II News [See all](#)

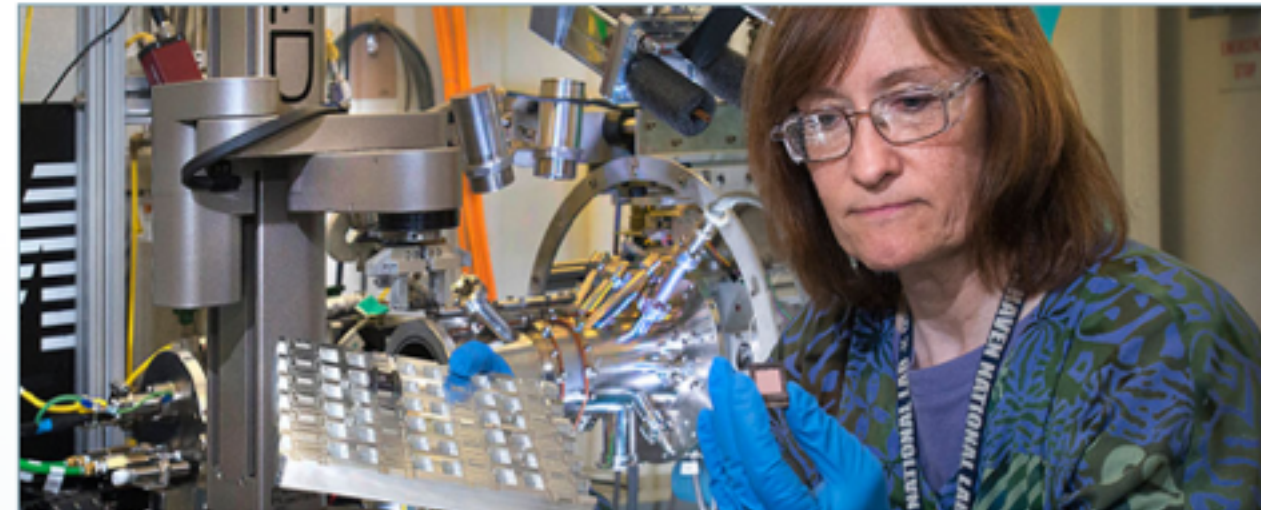
Submitting a proposal

Facilities generally have link on home page

NSLS-II



NSLS-II User Guide



Get Started as an NSLS-II User

The NSLS-II User Guide is a step-by-step manual to help you apply for beam time, and—once accepted—how to get ready for your experiment, what to do when you get here, and how to report when you leave.

1 Determine proposal type

All beam time at NSLS-II is allocated based on a peer-reviewed proposal process. To start, you need to identify the type of proposal that fits your needs. You'll need to know either the technique required, the beamline name/number, or the name of the beamline primary contact to use the Beamlines Available for Proposals page (below) to determine the appropriate proposal type.

[Beamlines Available for Proposals](#)

If you need additional details on proposal types, review the [Guide to Proposal Types](#) or contact the [User Services Office](#).

2 Download your proposal template

Based on the proposal type that you'll be making, download the appropriate proposal template below and fill it out. (All templates are in Microsoft Word

User Guide Contents

Get Started

1. [Apply for Beam Time](#)
- ▶ [User Access Policy](#)
- ▶ [Proposal Types](#)
- ▶ [Proposal Evaluation](#)
- ▶ [Proposal Scoring](#)
- ▶ [Partner User Agreements](#)
- ▶ [Beam Time Allocation](#)

Before You Arrive

Once your proposal has been accepted...

1. [Register for Site Access](#)
2. [Complete Required Training](#)
3. [Submit Safety Approval Forms](#)
4. [Prepare for your trip](#)

When You Arrive

1. [On-site Check-in](#)
2. [Complete Beamline-specific Training](#)
3. [Perform Experiment](#)

Post Experiment

1. [Complete the End-of-Run Survey](#)
2. [Submit Publication Citations](#)
3. [Data Management Policy](#)

Have Questions?

The staff of the [User Services Office](#) will be happy to help you.

Submitting a proposal

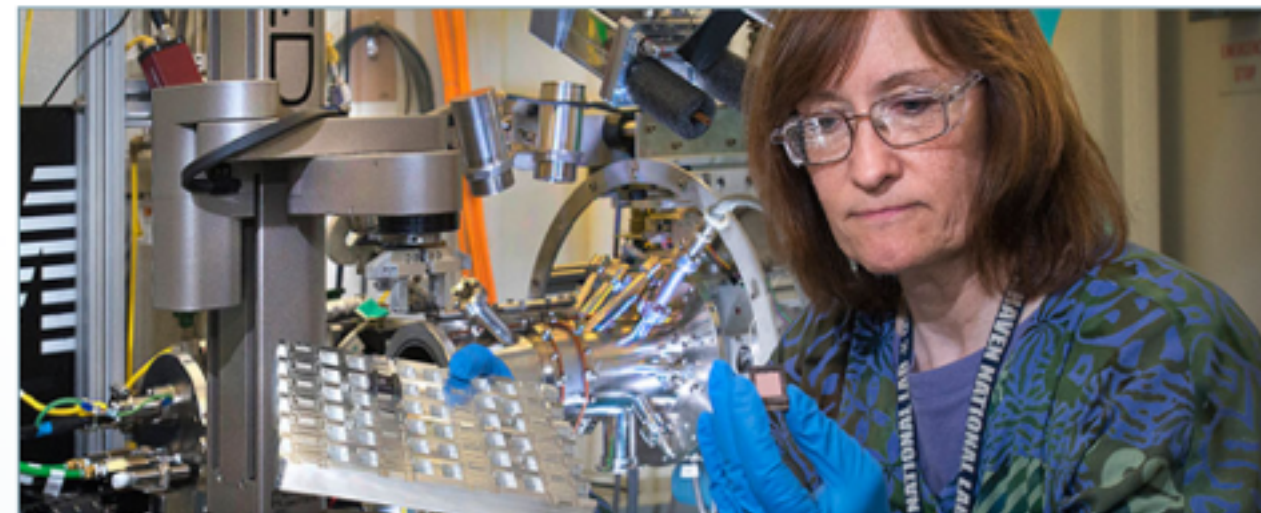
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NSLS-II

Brookhaven National Laboratory National Synchrotron Light Source II U.S. Department of Energy

Home About For Users & Staff For Industry Beamlines Research News & Publications People Intranet

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APS

About Safety Organization **APS User Info** APS-U Machine Status Beamlines Media Search

Industry Long-Range Schedule APS Highlights Book APS Broch Science Highlights Publications APS/User News Useful Links Directory Contacts

Advanced Photon Source

An Office of Science National User Facility

Argonne National Laboratory

New Polymer Films Conduct Heat Instead of Trapping It

Research at the U.S. Department of Energy's Advanced Photon Source may spur the development of polymer insulators as lightweight, flexible, and corrosion-resistant alternatives to traditional metal heat conductors.

Read More

APS Upgrade

The Department of Energy has approved the technical scope, cost estimate and plan of work for an upgrade of the Advanced Photon Source (APS), a major storage-ring X-ray source at Argonne National Laboratory. [MORE](#)

APS User Info

Comprehensive information for prospective, new, and existing APS users, including how to get started as a user, safety and training, experiment proposals, travel, news and calendars, and access to the APS User Portal. [MORE](#)

NIST

NIST CENTER FOR NEUTRON RESEARCH

The NIST Center for Neutron Research is a national resource for industry, universities, and government agencies.

Logon to your NCNR-MS account

Obtaining Beam Time

Arrange a visit to NCNR +

Planning Your Experiment +

Live Data

About NCNR +

Neutron Instruments +

Schedules

Sample Environment

Spin Filters

Sample Prep Labs



Maximizing access for the scientific community to transformative neutron scattering instrumentation



A consortium for the advancement of neutron-based measurements for manufacturing of soft materials

NEWS FOR NCNR USERS

CALL FOR PROPOSALS

The last deadline for proposals for instrument time was **April 16, 2019**. [previous proposal statistics](#)

[NCNR Seminar Schedule](#)

[2019 Summer School: July 22-26, 2019](#)



[Getting Great Data with CHRN](#) a 2½ minute video that describes the Center for High Resolution Neutron Scattering, a key partnership with the National Science

Foundation

NCNR **Data Management Plan**

The latest revision of the [NCNR Data Management Plan \(DMP\)](#) is available here.

16



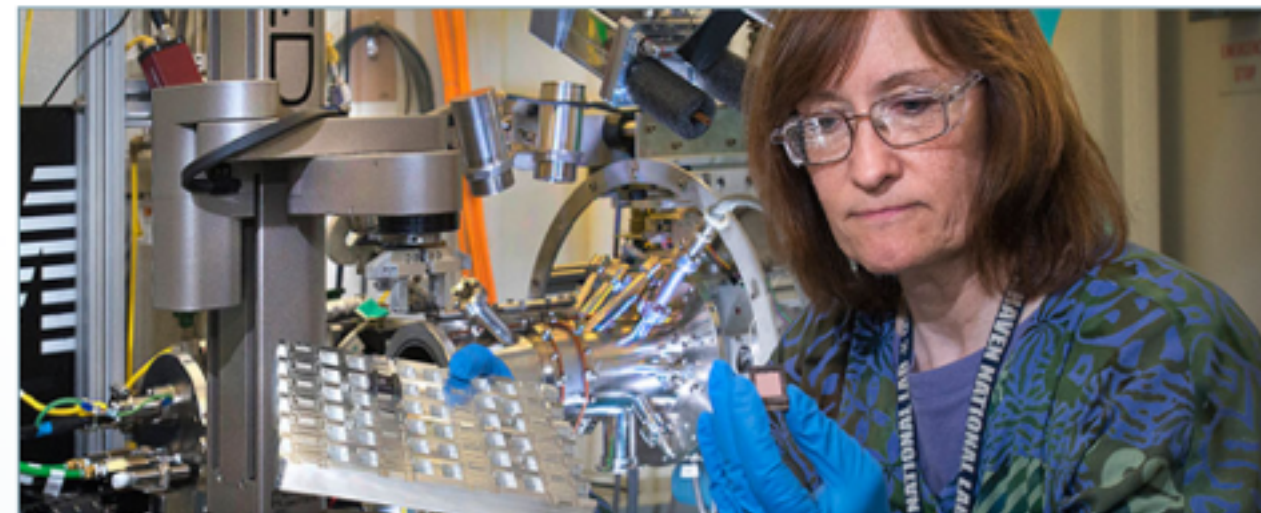
Submitting a proposal

Facilities generally have link on home page

NSLS-II



NSLS-II User Guide



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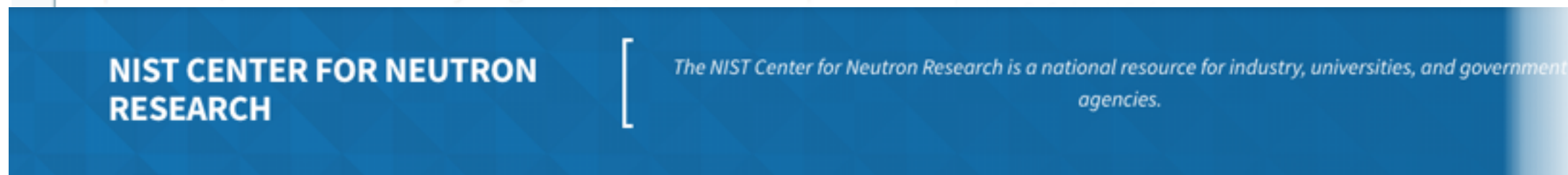
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- ▶ [Proposal Types](#)
- ▶ [Proposal Evaluation](#)
- ▶ [Proposal Scoring](#)
- ▶ [Partner User Agreements](#)
- ▶ [Beam Time Allocation](#)

Before You Arrive

Once your proposal has been accepted...

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2. [Complete Required Training](#)

NIST



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Getting Great Data with CHIRNS a 2 1/2 minute video that describes the Center for High Resolution Neutron Scattering, a partnership with the National Science

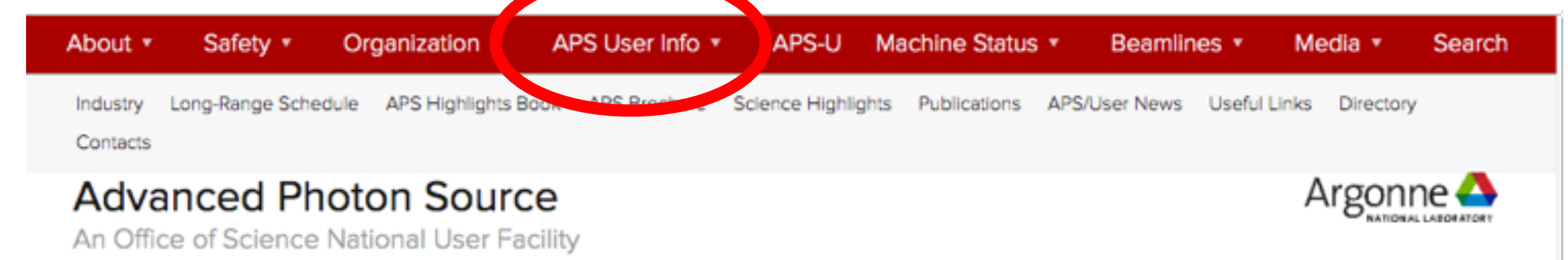
Foundation

NCNR Data Management Plan

16

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APS



APS User Information

NOTIFICATION TO USERS: The U.S. Department of Energy Office of Science (SC), which is the primary sponsor of the APS, requires that a limited set of information relating to your user project/experiment be transmitted to SC at the conclusion of the current fiscal year. A subset of this information, including your name, institutional affiliations, and project titles(s), will be publicly disseminated a part of an SC user facility user projects/experiments database on the SC website, <http://science.energy.gov>, after the conclusion of the fiscal year. For proprietary projects, SC requests that the user provide a project title that is suitable for public dissemination.

SHUTTLE SERVICE: The Argonne Guest House now offers a shuttle service between the hotel and the Main Gate for its guests! The shuttle is available Monday through Friday from 8:00 am to 5:00 pm.

FAMILY MEMBERS of users wishing to come on site at Argonne need to submit a [visitor registration form](#) to request access.

A [color-coded map of Argonne National Laboratory](#) is now available to better assist navigation around the Lab! APS is located in the 400 area.

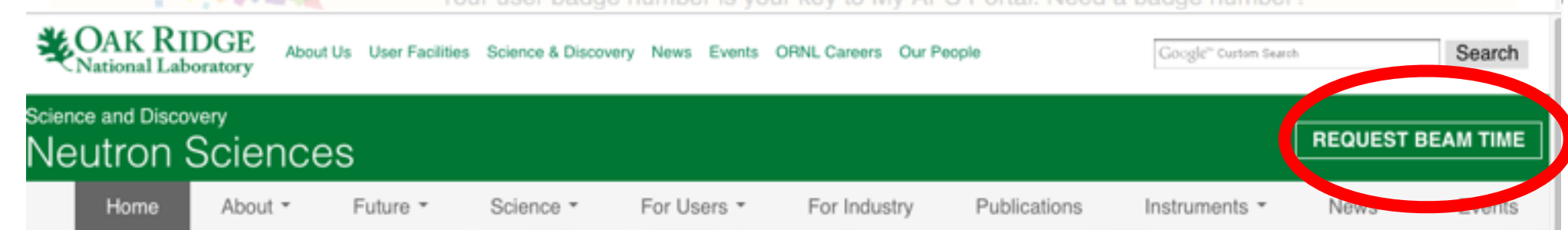


My APS Portal is your personalized gateway to the APS. It includes information about

- **you:** your visits to APS, site access permission, user agreement, training, contact/bio information
- **your research:** proposals, ESAFs, EEFs
- **action items:** things that need to be addressed before you arrive at Argonne

Your user badge number is your key to My APS Portal. Need a badge number?

SNS HFIR



Different types of proposals allow facility flexibility

Each facility has particular systems or proposal modes:

APS

GUP - General User Proposal are valid for two years or until recommended shifts are fully used. A beam time request has to be submitted for each cycle for which the proposal is to be considered.

PUP – Partner User Proposal - Groups whose work involves a greater degree of collaboration with the APS. (e.g. major new instrumentation or technique).

Rapid Access Mail in Powder Diffraction for 11-BM, 11-ID, 17-BM. Very easy , they send you capillary tubes.

Rapid Access General User Proposal is valid for a single cycle, single Beam Time Request

CHESS – Cornell

Standard Proposal is good for two years from the date of review and acceptance. After a proposal has been reviewed and accepted, it generates its first beam time request. A Beam Time Request (BTR) must be submitted for every following cycle for which a user requests beam time.

Fesibility study proposals are only granted for one time access to test something never done before.

NIST Center for Neutron Research

New Proposal Regular proposal (including continuation) for one beam time access, reviews by Committee (BTAC)

Quick Access Proposal for experiments that cannot be delayed. Reviewed by BTAC but held to higher standard

Beam Time Request is a request for part of the instrument time reserved for NIST internal research programs. Such requests may be made by external users through collaborative research projects with a NIST Staff member

Proposal forms at SNS and APS

SNS/HFIR

Create Proposal - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://snsapp1.sns.ornl.gov/pls/xprod/f?p=100:49:3910448804620322::NO

Integrated Proposal Tracking System

Home Create a New Proposal Create a Proposal From an Existing Proposal My Proposals All Proposals

Create a New Proposal

Help

Base Proposal Information Cancel Save and Continue

Proposal Number Pending
Name Suzanne Te Velthuis
Date 23-SEP-2008 Email tevelthuis@anl.gov

User Institution Search

Proposal Title

Proposal Type

Will the data collected be considered Proprietary? Yes No

Will the data collected be considered classified? Yes No

Is this research required for a student's thesis? Yes No

Does this experiment involve exposure to, or use of, biological materials? Such as recombinant DNA, virus or components of a virus, a biological toxin, exposure or handling of risk group 1 or 2 microorganisms (dead or alive), select agents or toxins (dead or alive) or any other sort of biologically hazardous material, to either plants or animals. Yes No

Will human subjects or laboratory animals be used in this experiment, or does this operation involve exposure to, or handling of, human tissue or body fluids, human cells in culture or animal matter? Yes No

Will Hazardous substances, equipment, or procedure be brought to ORNL as part of this proposed experiment? If Yes, provide detailed safety procedures in proposal text. Yes No

Abstract

0 of 4000

Related Proposals

Done snsapp1.sns.ornl.gov

APS

Select Your General User (GU) Proposal Type:

- Rapid Access Mail-in Powder Diffraction or PDF (11-BM,11-ID,17-BM) Proposal
- Macromolecular Crystallography Proposal (includes rapid access MC)
- Standard General User Proposal
- Rapid Access General User Proposal (DO NOT USE FOR MC PROPOSALS)

USE FOR MAIL-IN WORK ONLY.

These proposals are for mail-in rapid access powder diffraction or PDF measurements at 11-BM, 11-ID-B, and 17-BM. No expiration notices are sent.

Not accepted:

- Biohazards | - Human-Derived Materials
- Radioactive Materials | - Particle irradiated samples
- Non-Sterilized Regulated Soils | - Explosives or Unstable Materials
- Liquids

Choose beamline: 11-BM 11-ID-B 17-BM

Select Your General User (GU) Proposal Type:

- Rapid Access Mail-in Powder Diffraction or PDF (11-BM,11-ID,17-BM) Proposal
- Macromolecular Crystallography Proposal (includes rapid access MC)
- Standard General User Proposal
- Rapid Access General User Proposal (DO NOT USE FOR MC PROPOSALS)

Standard general user proposals are valid for two years (6 cycles) or until recommended shifts are fully used.

Available Cycle(s) for Standard GU Proposal:

Select 2019-3 Due 05-JUL-19

Each proposal system will ask very similar questions

Proposal forms at SNS and APS

SNS/HFIR

The screenshot shows the 'Create Proposal' page in Mozilla Firefox. The browser address bar shows the URL: <https://snsapp1.sns.ornl.gov/pls/xprod/f?p=100:49:3910448804620322::NO>. The page title is 'Integrated Proposal Tracking System'. The main content area is titled 'Create a New Proposal' and contains a 'Base Proposal Information' form. The form includes fields for 'Proposal Number' (Pending), 'Name' (Suzanne Te Velthuis), 'Date' (23-SEP-2008), 'User Institution' (with a search button), 'Proposal Title' (test), and 'Proposal Type' (%). There are several radio button questions regarding data collection, safety, and biological materials. A large text area for the 'Abstract' is at the bottom, with a character count of '0 of 4000'. The page footer shows 'Done' and 'snsapp1.sns.ornl.gov'.

APS

The screenshot shows the 'APS - General User Proposal' page in Mozilla Firefox. The browser address bar shows the URL: https://beam.aps.anl.gov/pls/apsweb/gup0001.display_exp?i_pid=792659010841428&i_page_num=1&i_gup_id=10. The page title is 'APS - General User Proposal'. The main content area is titled 'APS - General User Proposal' and contains a 'General' tab. The form includes a 'Proposal Title' field, a table for 'Shifts Recommended by PRP', 'Shifts Allocated by BAC or Scheduled by Beamline in current cycle', 'Shifts Used to date', and 'Shifts Remaining'. There are several radio button questions regarding project status, mail-in service, macromolecular crystallography, data collection, safety, and human/animal subjects. A large text area for the 'Subject of Research' is at the bottom, with a character count of '(500 characters or less)'. The page footer shows 'Done' and 'beam.aps.anl.gov'.

Each proposal system will ask very similar questions

Questions asked

- Proposal Title
- General Info (Title, Experimenters, Funding source, etc.)
- Abstract - What is the *scientific importance* of the proposed research?
- Why do you need the facility to do this research?
 - (Neutron vs. X-rays) or (Neutrons + X-rays)?
 - Why do you need an insertion device beamline instead of a bending magnet?
 - Spallation source vs. reactor source
 - Hard X-rays vs. Soft X-rays
- Why do you need the beam line (and/or instrument)?
 - Particular technique or sample environment
- What previous experience / sample characterization / results do you have (pubs important)?
- Describe the proposed experiment(s), including samples and procedures. *Show that you're prepared.*
- Justification of the amount of time requested. Don't be greedy or unrealistic about time needed. Ask beamline staff if not known from previous experience.

General Information

Edit Proposal - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://snsapp1.sns.ornl.gov/pls/xprod/f?p=100:11:3910448804620322::NO::P11_PRPSL_ID:1498&cs=379C651964E7D8D68013400184A7F54

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Home Proposal Details Funding Research Areas Facilities Instruments Team Members Samples Scheduling Submit for Review

My Proposals > **Edit Proposal IPTS-1498**

Help

Edit Proposal Cancel Apply Changes

Proposal Number	IPTS-1498
Status	Saved for Further Editing by Applicant
Name	Suzanne Te Velthuis
Email	tevelthuis@anl.gov
* Proposal Date	23-SEP-2008 15:23
* User Institution	US - Argonne National Laboratory <input type="button" value="Search"/>
* Proposal Title	test
* Proposal Type	General User
* Will the data collected be considered proprietary?	<input type="radio"/> Yes <input checked="" type="radio"/> No
* Will the data collected be considered classified?	<input type="radio"/> Yes <input checked="" type="radio"/> No
* Is this research required for a student's thesis?	<input checked="" type="radio"/> Yes <input type="radio"/> No
* Does this experiment involve exposure to, or use of, biological materials? Such as recombinant DNA, virus or components of a virus, a biological toxin, exposure or handling of risk group 1 or 2 microorganisms (dead or alive), select agents or toxins (dead or alive) or any other sort of biologically hazardous material, to either plants or animals.	<input type="radio"/> Yes <input checked="" type="radio"/> No
* Will human subjects or laboratory animals be used in this experiment, or does this operation involve exposure to, or handling of, human tissue or body fluids, human cells in culture or animal matter?	<input type="radio"/> Yes <input checked="" type="radio"/> No
* Will Hazardous substances, equipment, or procedure be brought to ORNL as part of this proposed experiment? If Yes, provide detailed safety procedures in proposal text.	<input type="radio"/> Yes <input checked="" type="radio"/> No
* Abstract	<div style="border: 1px solid #ccc; padding: 5px;">This is the abstract</div> <p>20 of 4000</p> <p><input type="button" value="Download Template"/> <input type="button" value="Attach Statement of Research (.pdf)"/></p> <p>Please use the Template Provided to Prepare your Proposal.</p>
Last Modified Date	23-SEP-2008 15:23

Done snsapp1.sns.ornl.gov

Proposal: General information

- Pick a good title. Specific and to the point is better than spectacular and vague. Spectacular and specific is fine if credible.
 - Good: “XAS study of Fe valence in CaFe_2As_2 under pressure ”
 - Bad: “Understanding superconductivity in superconductors”
- Is it thesis related? Is there a deadline?
 - May push your proposal up if scores are close
- Fill in the abstract - this is where the reviewer develops first impression.
 - Do not just upload a PDF document! Creates more work for reviewer.
 - Scientific merit in abstract is most important criteria for the score.
- Do upload a figure from previous work
 - shows how you made use of previous beamtime
 - Do NOT upload 20 pages of supplemental materials. Only a few figures to help your scientific case

Proposal: Experimenters page

Proposal : GUP-10325

Spokesperson: [Find](#)

First Name : Last Name

Phone: Email Badge

Institution:

Mailing Address:

Experimenters Coming to APS:

Badge	First Name	Last Name	Affiliation	Phone	Email	Delete
Find						
Find						
Find						
Find						

Experimenters Not Coming to APS:

Badge	First Name	Last Name	Affiliation	Phone	Email	Delete
Find						
Find						
Find						
Find						

Previous Page Next Page

Pressing SAVE will allow you to save this proposal and continue to make changes. Notifications will not be sent.

Pressing SUBMIT will save this proposal AND notifications will be sent to the APS. No changes can be made thereafter.

Proposal # : 10325

- Use the “find” feature
- List everyone involved in experiment
- Even theorists are useful to show impact / readiness of the team to interpret results

Experiment Description

General Experimenters Abstract Beamtime Request **Questions** Review Panel

Proposal : GUP-10325

Please specify the funding source(s) for your proposed research:

<input type="checkbox"/> DOD (specify)	<input type="checkbox"/> DOE, Office of Basic Energy Sciences	<input type="checkbox"/> DOE, Office of Biological and Environmental Research
<input type="checkbox"/> DOE, Other (specify)	<input type="checkbox"/> Foreign (specify)	<input type="checkbox"/> HHHI
<input type="checkbox"/> Howard Hughes Medical Institute (HHMI)	<input type="checkbox"/> Industry	<input type="checkbox"/> NASA
<input type="checkbox"/> NIH	<input type="checkbox"/> NSF	<input type="checkbox"/> Other U.S. Government
<input type="checkbox"/> USDA	<input type="checkbox"/> Other (specify)	Specify Other: <input type="text"/>

What is the scientific or technical purpose and importance of the proposed research? (limit : 500 words)

Why do you need the APS for this research? (limit : 100 words)

Why do you need the beamline you have chosen? (limit : 100 words)

Note guidance!

Don't write one sentence or 1000 words.

Do not use undefined jargon or acronyms that could frustrate reviewer!

Experimental Details

- Give background information why it is important.
 - Science at facilities is very diverse. Reviewer is not necessarily an expert on your subject. Try to capture imagination of reviewer with basic idea.
 - Each committee gets many proposals each cycle. Proposal needs to be clear and concise.
- Clearly state what you want to measure and how
 - Give some details. Temperature range, X-ray Energy, Sample geometry
 - What sample characterization has been done already (XRD, SEM, etc.)? Is there preliminary data?
 - Can you provide a calculation to show sensitivity is there ?
 - Reviewer needs to judge if experiment is feasible
 - ➔ Does x-ray energy match laser penetration depth
 - ➔ % of dilute atoms OK for fluorescence measurements

Experimental Details

- Why use x-rays or neutrons?
 - Neutron vs. X-rays OR Neutron + X-rays?
 - TEM, Mössbauer, Laser Raman, etc. (Have you done your homework?)
- Justify the amount of beam time requested (**ask instrument scientist!**)
 - Be reasonable.
- How will you analyze your data?
 - Don't count on a Miracle to occur

Beamtime Request

General Experimenters Abstract **Beamtime Request** Questions Review Panel

Proposal : GUP-10325

Rapid Access Description **Make New Request** 3rd

Total 8-hour shifts requested for the LIFE OF THE PROPOSAL
 Total 8-hour shifts recommended by the Proposal Review Panel for the LIFE OF THE PROPOSAL : not available
 Total shifts used to date: 0
 Number of the shifts remaining not available
 For which scheduling period are you applying? Status :
 Techniques Required:
 Choice Of Beamline:
 Please select the instrument based on your beamline selection:
 For 1st beamline
 For 2nd beamline
 For 3rd beamline
 Any appropriate beamline
 Number of 8-hour shifts requested for THIS scheduling period
 Minimum number of usable shifts per visit:
 Do you have specific scheduling requirements ?
 What equipment is required ?
 What equipment will you bring ?
 Please list any new publications resulting from your work at the APS.
 Describe the progress made during your most recent beamtime. (2000 characters including spaces)
 Unacceptable Dates (MM/DD/YYYY)

From	To
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

Previous Page Next Page

Pressing SAVE will allow you to save this proposal and continue to make changes. Notifications will not be sent.
 Pressing SUBMIT will save this proposal AND notifications will be sent to the APS. No changes can be made thereafter.

Proposal #: 10325

- APS proposals are valid for two years, but need to put in beam time request each cycle.
- Chose multiple beamlines.
 - SAXS (12-ID, 5-ID, 15-ID)
 - XAFS (20-BM, 10-ID,12-BM)
 - General Diffraction
- Don't list only one week that you can come. Holidays?
- Special sample environment / detectors will place more constraints on schedule.
 - GE amorphous Si detector
 - Magnet
 -

Ratings for APS Proposals

Table 1. Definition of Ratings Used in Reviewing General User Proposals	
1 - Extraordinary	The proposal involves highly innovative research of great scientific importance. Proposed research will significantly advance knowledge in a specific field or scientific discipline. Considerable societal relevance is demonstrated. The radiation characteristics of the APS are highly desirable for the success of the proposed work.
2 - Excellent	The proposed research is of high quality and has potential for making an important contribution to a specific field or scientific discipline. The work is cutting edge and is likely to be published in a leading scientific journal. The radiation characteristics of the APS are important to the success of the proposed work.
3 - Good	The proposed research is near cutting-edge and likely to produce publishable results. Impact on a specific field or scientific discipline is likely. Synchrotron radiation is essential to accomplish the intended goals of the research. The proposed work will greatly benefit from access to the APS.
4 - Fair	The proposed research is interesting but may not significantly impact a specific field or scientific discipline. Publication may or may not result from this research. Synchrotron radiation is required, but the proposed work could be performed at other facilities.
5 - Poor	The proposed research is not well planned or is not feasible. Results would not make important contributions to fundamental or applied understanding, and work is not likely to result in publication. The need for synchrotron radiation is not clear.

APS proposals are rated on a scale from 1 to 5

Cut off score for receiving beam time varies by beamline (<1.5 to 2.2)

Proposal “**ageing**” (score improves by 0.2 each cycle it does not receive time). This is needed for getting time at some oversubscribed beamlines, so long-term planning is needed. But you have to remember to request beamtime again for every cycle.

Pick appropriate panel - Important!

Current Panels

High Pressure

Instrumentation

Imaging/Microbeam

Macromolecular Crystallography

Scattering - Condensed Matter

Scattering - Applied Materials

Scattering – Chem / Bio / Environment

Small Angle Scattering (SAXS)

Spectroscopy

Structural Science

Inelastic X-ray scattering

Pump Probe

Dynamic Compression

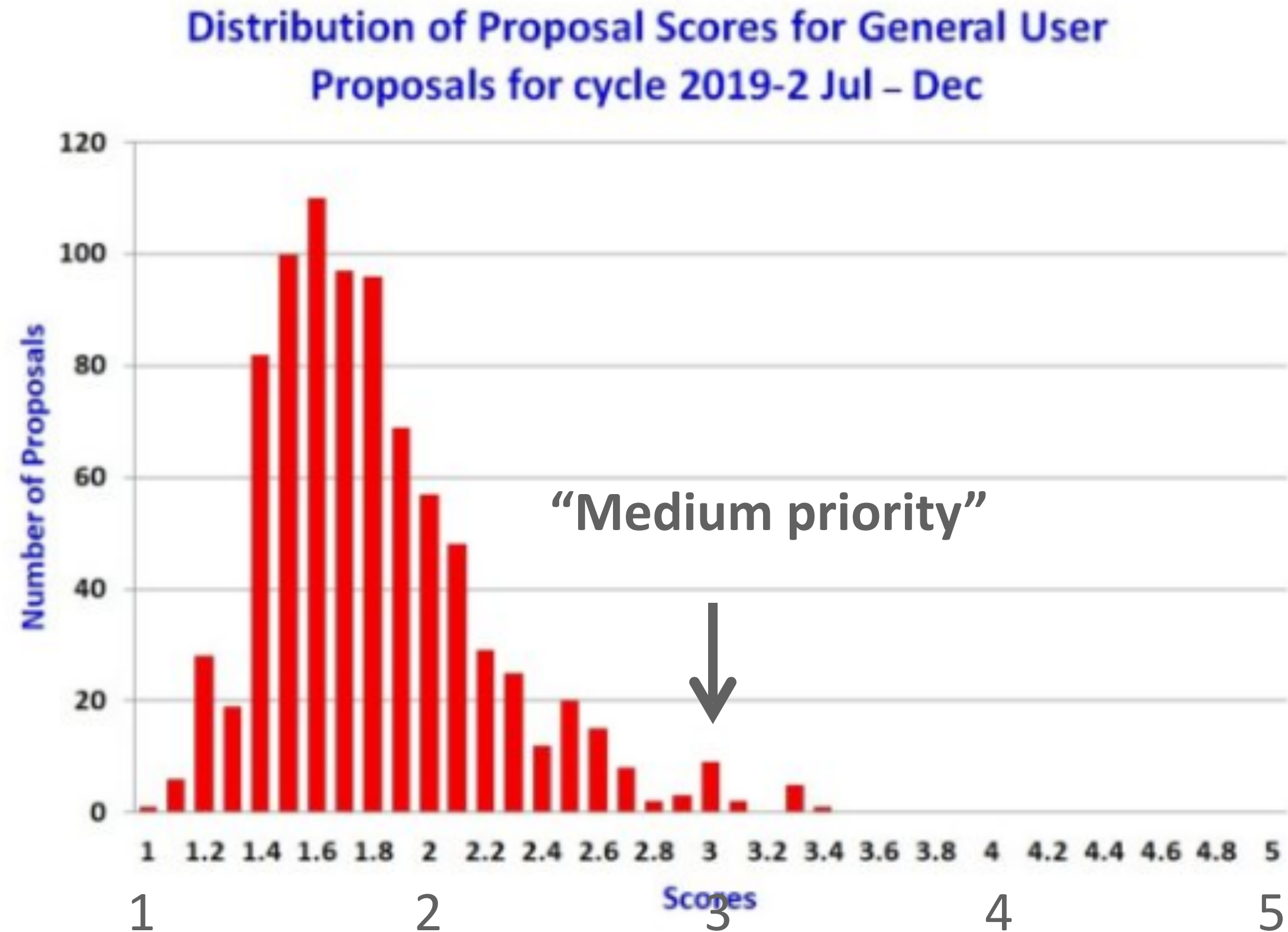
If multiple possibilities - Look at members & Ask staff

Proposal Review Panels

Proposal Review Panels		
Real-time PRP Score Tracking Application		
Archived PRP Scores Application		
High Pressure Barbara Lavina, <i>Chair</i> <ul style="list-style-type: none"> • June Wicks • Camelia Stan • Christine Beavers • Arianna Gleason • Antonio Moreira dos Santos • Shanti Deemyad • Sang-Heon (Dan) Shim • Maik Lang • Thomas Fitzgibbons • Wenli Bi • Jason Jeffries • Jennifer Girard • Ross Hrubciak • Dongzhou Zhang • Shanti Deemyad 	Instrumentation Robert Henning, <i>Chair</i> <ul style="list-style-type: none"> • Gary Navrotski • Yu-Sheng Chen 	Imaging/Microbeam Garth Williams, <i>Chair</i> <ul style="list-style-type: none"> • Bhoopesh Mishra • Ryan Tappero • Claire Weekley • Dula Parkinson • Balaji Raghothamachar • Mingyuan Ge • Trevor Willey
Macromolecular Crystallography John Rose, <i>Chair</i> <ul style="list-style-type: none"> • Arnon Lavie • Anne Mulichak 	Scattering—Condensed Matter Divine Kumah, <i>Chair</i> <ul style="list-style-type: none"> • Nouamane Laanait • Phil Ryan • Stephen Wilson • Hua Zhou • Sara Haravifard • Mingda Li • Jacob Ruff 	Scattering—Applied Materials Marcus Young, <i>Chair</i> <ul style="list-style-type: none"> • Darren Pagan • Stephan Hruszkewycz • Tao Li • Laura Schelhas • Sumit Kewalramani
Scattering—Chem/Bio/Enviro Greeshma Gadikota, <i>Chair</i> <ul style="list-style-type: none"> • Ivan Kuzmenko • Connie Lu • Shao-Liang Zheng • Derk Joester • Millicent Firestone 	Small-angle X-ray Scattering (SAXS) Joe Strzalka, <i>Chair</i> <ul style="list-style-type: none"> • Maria Bewley • Andy Herring • Samanvaya Srivastava • David Lambright • Joshua Hammons 	Spectroscopy George Sterbinsky, <i>Chair</i> <ul style="list-style-type: none"> • Eli Stavitski • Yulia Pushkar • Yuji Arai • Azzam Mansour • Kyler Carroll • Conan Weiland • Padraic Shafer • Evert Elzinga • Xiafeng Guo • Giuseppina Conti • Riccardo Comin • Tianpin Wu • Jier Huang
Structural Science James Kaduk, <i>Chair</i> <ul style="list-style-type: none"> • Ryan Ott • Peter Khalifah • Craig Bridges • Kevin Stone • Michelle Dolgos • Jamie Neilson • Valeri Petkov • Andrew Payzant • Peter Stephens • Scott Misture • Craig Brown • David Billing • Jennifer Niedziela • Cora Lind-Kovacs • Zhenzhen Yu 	Inelastic X-ray Scattering Stuart Calder, <i>Chair</i> <ul style="list-style-type: none"> • Raphael Hermann • Yong Cai • Ignace Jarrige • Yue Cao 	Pump Probe Eric Landahl, <i>Chair</i> <ul style="list-style-type: none"> • Anne Marie March • Matthew DeCamp • Marius Schmidt • Xiaoyi Zhang
Dynamic Compression Robert Cauble, <i>Chair</i> <ul style="list-style-type: none"> • Justin Brown • Tim Germann • Thomas Gog 		

ALS provides cutoff scores - Helps you know what to expect

<https://als.lbl.gov/general-user-proposal-score-statistics/>



Beamline	% Beam Time Allocated / Requested	Cutoff Score
1.4 (IR)	76 easier	2.84 ←
2.4 (SINS)	54	2.08
4.0.2 (Magnetic Spectroscopy/Scattering)	18	1.63
4.0.3 (MERLIN)	22	1.68
5.3.2.2 (Polymer STXM)	71	1.73
5.4 (IR)	79 easier	2.40 ←
6.1.2 (Soft X-Ray Microscopy)	51	1.73
6.3.1.1 (Magnetic Spectroscopy)	25	1.80
6.3.2 (Calibration, Optics Testing, Spectroscopy)	68	2.36
7.0.1.2 (COSMIC)	28	1.50
7.0.2 (Surface & Materials Science (MAESTRO))	20	1.44
7.3.1 (ISAAC)	36	1.80
7.3.3 (SAXS)	46	1.58
8.0.1 (SXF)	19	1.68
8.3.2 (Tomography)	48	1.87
9.0 (Chemical Dynamics, Coherent Imaging)	68	2.03
9.3.1 (Tender APXPS)	14 harder	1.20 ←
9.3.2 (APXPS)	29	1.48
10.0.1 (HERS/AMO)	24	1.76
10.3.2 (Micro XAFS)	50	1.73
11.0.1 (PEEM3, Soft X-Ray Scattering)	20	1.55
11.0.2 (Molecular Environmental Sciences, STXM, ambient pressure XPS)	22 harder	1.24 ←
12.2.1 (Small Molecule Crystallography)	53	1.60
12.2.2 (High Pressure)	25	1.55
12.3.2 (Microdiffraction)	38	1.70

SNS/HFIR does not tell you a score or panel members. You can try asking user office or beamline.

Tips (see also: <https://neutrons.ornl.gov/users/tips>)

- Pick a good science question
- Give a concise explanation, with a good bit of background for non-specialist
- Provide background on importance
 - what is the bigger picture
 - what is known, what is not known
- State a clear hypothesis
 - what are you going to measure
 - how is it related to your big science question
- Include relevant details regarding the experiment, but do not get too verbose
 - Reviewer needs to judge feasibility of the experiment, choice of instrument

Tips (see also: <https://neutrons.ornl.gov/users/tips>)

- Talk to the local contact / instrument scientist (in particular if first time user)
 - Find out about details of the instrument, typical measuring times...
 - Over-subscription rate? Can a less popular instrument do the same measurements?
 - Send them the proposal ahead of time and ask for advice. Collaborate?
- If you have previous results from other experiments include them!
 - Home, other institution, previous experiment.
 - Sample characterization.
- Take advantage of proposal ageing. **Plan ahead!**
- **Do not submit a bad proposal in a rush.**

Several common pitfalls

- Proposer assumes committee is familiar with their specialty. Explain impact.
- Proposer writes large general vague proposal asking for multiple weeks of time. Better to write a shorter proposal with a well defined objective. Be realistic with beam time request.
- Proposer submits 2 (or more) similar proposals for related materials thinking that multiple proposals increases chances.
- Proposal deadline (for next cycle) is before scheduled beam time this cycle.

Common Reviewer comments:

- *“The score could be improved by including more experimental details, attaching previous results and expanding on the purpose and importance of the research.”*
- *“Hasn't the proposed research been published previously?”*
- *“We do not feel that granting 20 shifts/cycle for 2 years is consistent with the history of publication of this work.”*
- *“Proposer should perform initial characterization with lab sources or TEM.”*
- *“Will the signal be strong enough compared to background?”*

After submission

- Allow time for review and revisions
- Expect feedback several weeks from the call close
- Be ready to schedule experiment if approved
 - Identify participating team members
 - Respond to facility access approval information
 - Facilitate execution of user agreements
 - Complete required training
 - Confirm sample availability and description and laboratory needs
- Consider reviewer comments if not approved and plan to resubmit this proposal or a new proposal in the next call. Opportunities (# of facilities and beamlines/facility) continue to grow.

Scientific and Funding Opportunities



As a student

- Attend neutron & x-ray schools, workshops & user meetings. Knowledge and connections have long-term impact. Collaborations are essential.
- Join SNS HFIR User Group (SHUG) and other facility user organizations
Advocacy group, learn about and influence new developments
- Explore DOE and NSF internships, fellowships, and research programs
SCGSR; ORISE/ORAU (HERE, GO!). Local contacts help (a lot).

<https://science.energy.gov/wdts/scgsr/how-to-apply/priority-sc-research-areas/>

- Invite scientists from national labs to your campus, e.g. for seminar

As a young professional

- Continue to use “free” user facilities
New faculty and industrial users can be favored in reviews
- Volunteer to be a reviewer on proposal panels
- Consider EPSCoR programs if located in an a participating state
- Apply for Early Career award – great for tenure application

LIST OF FACILITIES WEBPAGES

ALS <https://als.lbl.gov/>

APS <https://www.aps.anl.gov>

CHESS <https://chess.cornell.edu>

LCLS <https://lcls.slac.stanford.edu>

SSRL <https://www-ssrl.slac.stanford.edu>

NSLS-II <https://www.bnl.gov/ps/>

SNS/HFIR <https://neutrons.ornl.gov>

NIST <https://www.nist.gov/ncnr>

Worldwide resources: <https://lightsources.org/>

<https://neutronsources.org/>

THANKS TO

- Jonathan Lang
- John Budai
- Suzanne te Velthuis