



**Argonne**  
NATIONAL  
LABORATORY

*... for a brighter future*



U.S. Department  
of Energy

UChicago ►  
Argonne<sub>LLC</sub>



Office of  
Science  
U.S. DEPARTMENT OF ENERGY

A U.S. Department of Energy laboratory  
managed by UChicago Argonne, LLC

# *Proposal Writing: Hints for maximizing your chances for getting beam time*

**Jonathan Lang - APS-MMG**

*Neutron X-ray Scattering School  
June 12, 2009*

## *Basics of the facility proposal systems*

---

- All the DOE (NIST & 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 3 times a year (March, July, October)
  - SNS/HFIR 2x a year?
- All proposals are peer-reviewed and rated, and beam time is allocated using the scores of these reviews. Once time has been allocated, the beamline staff schedule the proposals.

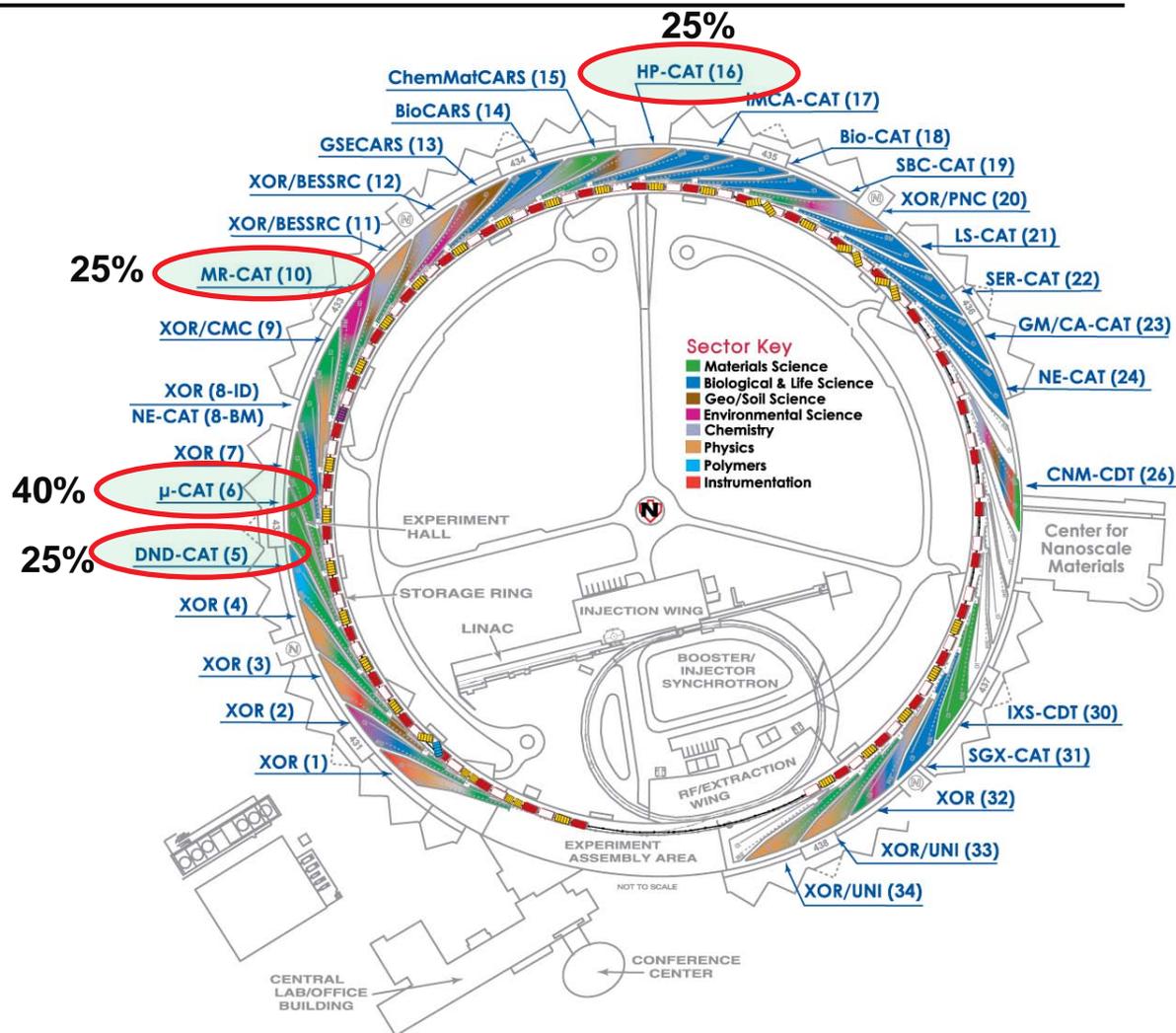
# Amount of general user time available

## 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.
- ✓ Once running, ~80% of time will be for general users.



## *Basics of the facility proposal systems*

---

- All the DOE (NIST & NSF) neutron and x-ray sources offer access to beam time through an experimental proposal system.
- Proposal submission is done through a web-based application. When and how often proposals are submitted varies by facility.
  - APS 3 times a year (March, July, October)
  - SNS/HFIR ~2x a year
- All proposals are peer-reviewed and rated, and beam time is allocated using the scores of these reviews. Once time has been allocated, the beamline staff schedule the proposals.

## Upcoming Proposal Deadlines:

---

### X-ray sources

APS

### Next Deadline

July 10, 2009

NSLS

Sept. 30, 2009

SSRL

Sept. 1, 2009

ALS

July 15, 2009

### Neutron sources

HFIR

Fall 2009

SNS

Fall 2009

LANSCE

July 20, 2009

NIST-NCNR

June 4, 2009

(+1 year)

Note at most facilities these are hard deadlines:

APS always at Friday mid-night (12:05 → next cycle)

## *Basics of the facility proposal systems*

---

- All the DOE (NIST & NSF) neutron and x-ray sources offer access to beam time through an experimental proposal system.
- Proposal submission is done through a web-based application. When and how often proposals are submitted varies by facility.
  - APS 3 times a year (March, July, October)
  - SNS/HFIR 2x a year?
- All proposals are peer-reviewed and rated, and beam time is allocated using the scores of these reviews. Once time has been allocated, the beamline staff schedule the proposals.

# 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

Average score is ~2.2

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

Proposal ageing ( score reduced by 0.2 each time does not receive time)

# Submitting a proposal

## NLSLS

## APS

The screenshot shows the NLSLS website with a navigation menu in the top right corner. A red circle highlights the 'Call for Proposals' link. Other visible elements include a search bar, a main header with the NLSLS logo, and a large group photo of staff.

## NIST

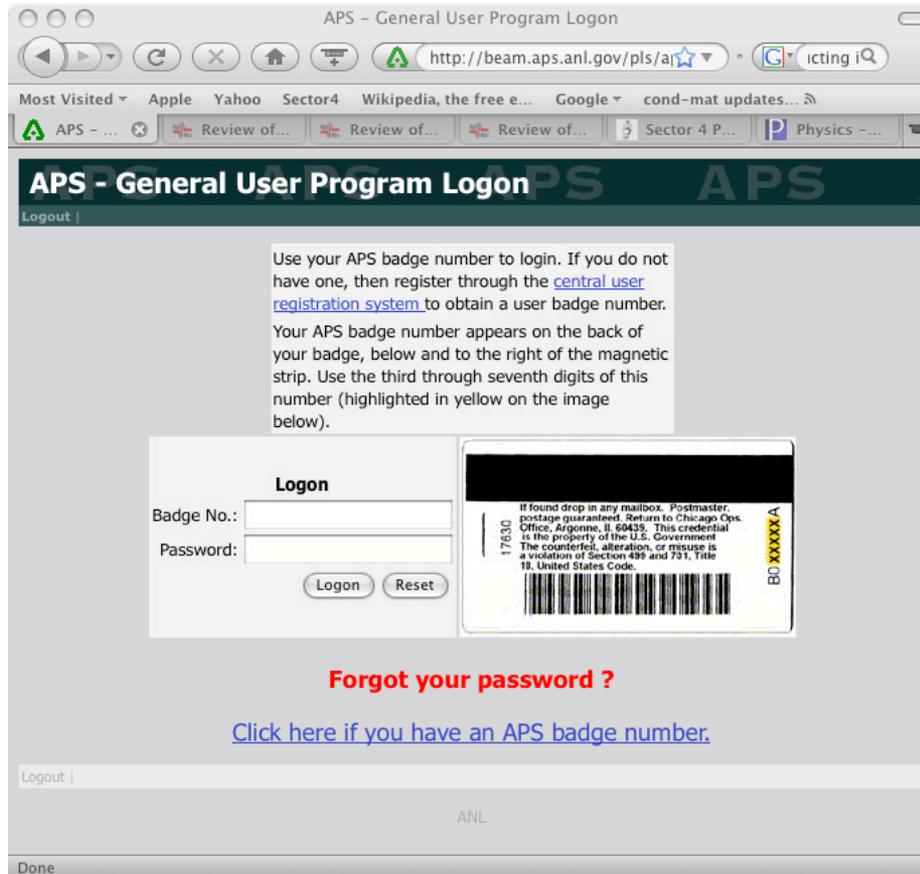
The screenshot shows the NIST Center for Neutron Research website. A red circle highlights a 'CALL FOR PROPOSALS - NEW!' announcement in the 'NEWS FOR NCNR USERS' section. The page features a header with the NIST logo and 'National Institute of Standards and Technology', and a main content area with various news items and research highlights.

The screenshot shows the APS website with a navigation menu in the top right corner. A red circle highlights the 'WORK' button in the 'LEARN START WORK' section. Other visible elements include a search bar, a main header with the APS logo, and a large image of a scientist working in a lab.

Almost all facilities have link on home page

# Login to the system

## APS



Will have to remember user number at each facility

# Proposal forms at SNS and APS

## SNS/HFIR

The screenshot shows the 'Create Proposal' form in Mozilla Firefox. The browser address bar shows the URL: <https://snsapt.sns.ornl.gov/bs/propd?ip=100149191044804620021:MO>. The page title is 'Integrated Proposal Tracking System'. The form is titled 'Create a New Proposal' and includes a 'Cancel' and 'Save and Continue' button. The 'Proposer Information' section includes fields for 'Proposer Name' (Suzanne Te Velthuis), 'Date' (23-SEP-2008), and 'Email' (tevelthuis@sns.gov). The 'Proposal Information' section includes a 'Proposal Title' field (test), a 'Proposal Type' dropdown menu (%), and several yes/no questions regarding data collection, safety, and hazardous materials. The 'Abstract' section has a text area with a character count of 0 of 4000.

## APS

The screenshot shows the 'General User Proposal' form in Mozilla Firefox. The browser address bar shows the URL: [https://beam.aps.anl.gov/bs/apweb/gup0001.display\\_exp?pid=792659010041428&page\\_num=1&gup\\_id=10](https://beam.aps.anl.gov/bs/apweb/gup0001.display_exp?pid=792659010041428&page_num=1&gup_id=10). The page title is 'APS - General User Proposal'. The form is titled 'General User Proposal' and includes a 'Generate Report' and 'Copy Proposal' button. The 'Proposal Information' section includes a 'Proposal Title' field (Proposal : GUP-10325). The 'Shifts Recommended by PRP' section shows 'not available' and 'Shifts Allocated by BAC or Scheduled by Beamline in current cycle' (0). The 'Shifts Used to date' is (0) and 'Shifts Remaining' is 'not available'. The 'Do you want this proposal to be considered for project status?' section includes several yes/no questions. The 'Subject of Research' section includes checkboxes for Materials science, Physics, Chemistry, Polymers, Medical applications, Biological and life sciences, Earth sciences, Environmental sciences, Optics (excluding x-ray optics), Engineering, Instrumentation related to user facilities, Purchase of specialty service or materials, and Other (specify). The 'Specify Other' field is empty. The 'Proposer Information' section includes a 'Proposer Name' field (Proposal # : 10325) and a 'Submit' button.

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
  - 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 / results do you have.
- Describe the proposed experiment(s), including samples and procedures.
- Justification of the amount of time requested.

# 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\_PRP5L\_ID:1498&cs=379C651964E7D8D6B013400184A7F54

Most Visited Getting Started Latest Headlines Hotmail NetZero E-mail Argonne National Lab...

PDF of IPTS-1498 Home Feedback FAQ Logout

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

Propose Number IPTS-1498

Status Saved for Further Editing by Applicant

Name Suzanne Te Velthuis

Email tevelthuis@anl.gov

\* Propose Date 23-SEP-2008 15:23

\* User Institution US - Argonne National Laboratory Search

\* Propose Title test

\* Propose Type General User

\* 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

This is the abstract

20 of 4000

Download Template Attach Statement of Research (.pdf)

Please use the Template Provided to Prepare your Proposal.

Last Modified Date 23-SEP-2008 15:23

Done snsapp1.sns.ornl.gov

## Proposal: General information

---

- Pick a good title. Boring and to the point is better than spectacular and vague.
  - Good: “XAS study of Fe valence in  $\text{CaFe}_2\text{As}_2$  under pressure ”
  - Bad: “Understanding superconductivity in iron pnictides”
- Is it thesis related? Is there a deadline?
  - Will push your proposal up if scores are close
- Fill in the abstract. Do not just upload a PDF document!
  - More work for reviewer.
- Do upload a publication from previous work (mention previous proposal).
  - Shows you made good use of beam time.
  - Do not upload a 20 pages of suplamental information.

# Proposal: Experimenters page

General Experimenters Abstract Beamtime Request Questions Review Panel

Proposal : GUP-10325

Spoke person: [Find](#)

First Name :  Last Name

Phone:  Email  Badge

Institution:

Mailing Address:

Experimenters Coming to APS:

Badge	First Name	Last Name	Affiliation	Phone	Email	Delete
<a href="#">Find</a>						
<a href="#">Find</a>						
<a href="#">Find</a>						
<a href="#">Find</a>						

Experimenters Not Coming to APS:

Badge	First Name	Last Name	Affiliation	Phone	Email	Delete
<a href="#">Find</a>						
<a href="#">Find</a>						
<a href="#">Find</a>						
<a href="#">Find</a>						

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

# 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"/> HHIH
<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)	<b>Specify Other:</b> <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)**

## Experimental Details

---

- Give background information why it is important.
  - Science at facilities very diverse. Good chance reviewer not expert in polymers, catalysts, superconductors, etc.
  - @ APS each committee gets ~60 proposals each cycle (~700 total/cycle)
- Clearly state what you want to measure and how
  - Give details. Temperature range, X-ray Energy, Sample geometry
  - What sample characterization has been done already? (XRD, SEM, etc.)
  - Reviewer needs to judge if experiment is feasible
    - *Does x-ray energy match laser penetration depth*
    - *% of dilute atoms OK for fluorescence measurements*
- Why use x-rays or neutrons?
  - Neutron vs. X-rays
  - TEM, Mössbauer, Laser Raman, etc.
- Justify the amount of beam time requested (ask instrument scientist!)

# Beamtime Request

- Proposals are valid for two years, but need to put in beamtime 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
  - ....

## Tips

---

- Give a concise explanation of this specific proposal
  - Provide background on importance (i.e. “bigger picture”)
  - State clearly exactly what you are going to measure and why.
    - *Reviewer want so assess likelihood of success.*
- Include relevant details to experiment but do not get too verbose
  - Reviewer needs to judge not only scientific importance, but also if the experiment is feasible and if you are asking for the right instrument.
- If you are a first time user, talk to the local contact/instrument scientist.
  - Find out about details of the instrument, typical measuring times...
  - 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. **Get a few proposals in the system.**

## *Several common pitfalls*

---

- Proposal deadline (for next cycle) is before scheduled beam time this cycle.
- Proposer assumes committee is familiar with their specialty.
- Proposer writes large proposal asking for multiple weeks of time. Better to write a shorter proposal with a well defined objective. Be realistic with beam time request.

### *Common Reviewer comments:*

- “Proposers could improve their score 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.

## Upcoming Proposal Deadlines:

---

### X-ray sources

APS

### Next Deadline

July 10, 2009

NSLS

Sept. 30, 2009

SSRL

Sept. 1, 2009

ALS

July 15, 2009

### Neutron sources

HFIR

Fall 2009

SNS

Fall 2009

LANSCE

July 20, 2009

NIST-NCNR

June 4, 2009

(+1 year)

Note at most facilities these are hard deadlines:

APS always at Friday mid-night (12:05 → next cycle)

## *Other Topical Schools and Short courses*

---

### **X-ray schools**

Ultrafast summer school - SSRL

XAFS summer school – APS

SAXS short course – APS

Fiber diffraction- APS

X-ray Imaging, High Pressure

### **Dates**

June 15-19, 2009

July 6-10, 2009

July 28-29, 2009

October, 2009

### **Neutron schools**

Lance summer school (phase trans.)

NIST summer school

(SANS or Neutron Spectroscopy)

July 7-17, 2009

June 22-26, 2009