

NSLS-II Proposal Review Panel Guidelines



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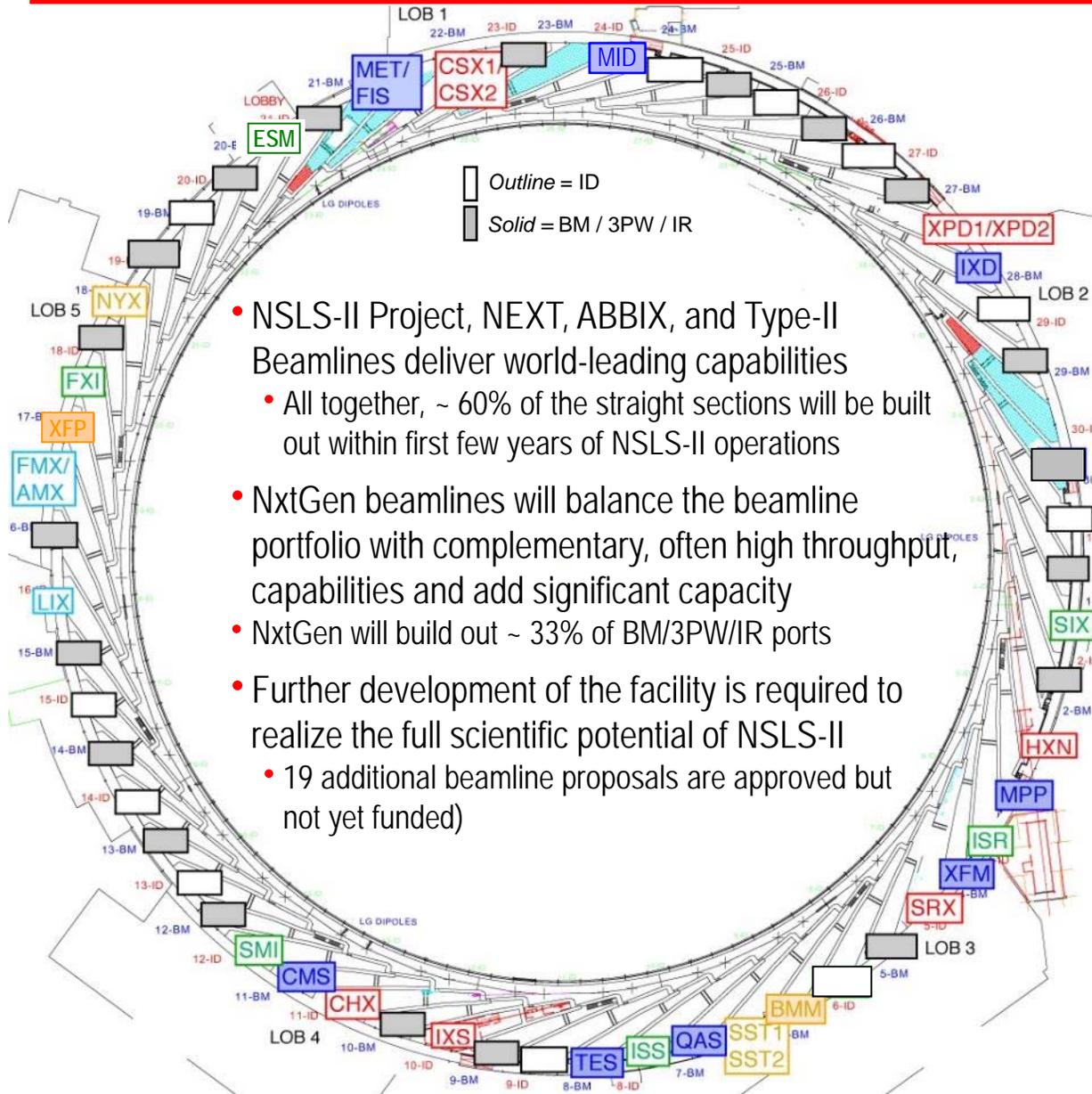
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Photon Sciences Directorate

NSLS-II PRP Meeting, February 4, 2014



NSLS-II Beamline Portfolio

30 Beamlines Under Development



- NSLS-II Project, NEXT, ABBIX, and Type-II Beamlines deliver world-leading capabilities
 - All together, ~ 60% of the straight sections will be built out within first few years of NSLS-II operations
- NxtGen beamlines will balance the beamline portfolio with complementary, often high throughput, capabilities and add significant capacity
- NxtGen will build out ~ 33% of BM/3PW/IR ports
- Further development of the facility is required to realize the full scientific potential of NSLS-II
 - 19 additional beamline proposals are approved but not yet funded)

8 NSLS-II Project Beamlines

Inelastic X-ray Scattering (IXS)
 Hard X-ray Nanoprobe (HXN)
 Coherent Hard X-ray Scattering (CHX)
 Coherent Soft X-ray Scat & Pol (CSX1, CSX2)
 Sub-micron Res X-ray Spec (SRX)
 X-ray Powder Diffraction (XPD1, XPD2)

6 NEXT Beamlines (DOE MIE)

Photoemission-Microscopy Facility (ESM)
 Full-field X-ray Imaging (FXI)
 In-Situ & Resonant X-Ray Studies (ISR)
 Inner Shell Spectroscopy (ISS)
 Soft Inelastic X-ray Scattering (SIX)
 Soft Matter Interfaces (SMI)

3 ABBIX Beamlines (NIH)

Frontier Macromolecular Cryst (FMX)
 Flexible Access Macromolecular Cryst (AMX)
 X-ray Scattering for Biology (LIX)

5 Partner Beamlines

Spectroscopy Soft and Tender (SST1, SST2)
 Beamline for Mater. Measurements (BMM)
 Microdiffraction Beamline (NYX)
 X-ray Footprinting (XFP)

8 NxtGen Beamlines

Complex Materials Scattering (CMS)
 Magneto, Ellipso, High Pressure IR (MET/FIS)
 Metrology & Instrum Development (MID)
 In-situ X-ray Diffraction Studies (IXD)
 Materials Physics & Processing (MPP)
 Quick X-ray Absorption and Scattering (QAS)
 Tender X-ray Absorption Spectroscopy (TES)
 X-ray Fluorescence Microscopy (XFM)

NSLS-II Beamline Development Timeline

- Through an open beamline development proposal process, we have identified forty nine beamlines to be developed at NSLS-II in the near to medium term, and are currently developing thirty such beamlines through **NSLS-II Project**, **NEXT**, **ABBIX**, **NxtGen**, and **Partner** beamline projects
- These beamlines will be completed and start operations in the 2015-2017 timeframe

FY13	FY14	FY15	FY16	FY17	FY18	FY19
		NSLS-II Project Beamlines				
			ABBIX Beamlines			
					NEXT Beamlines	
NxtGen & Partner Beamlines						

NSLS-II User Access Policy

– Includes Policy on Partner Users

- Three modes of scientific user access:
 - General User (GU) access (min. 50%)
 - Partner User (PU) access (up to 40%)
 - Beamline staff access (10%)
- General User (GU) Proposal
 - Valid for up to 2 years
 - May request multi-cycle status
 - Include remote and mail-in access
- Partner User (PU) Proposal
 - Must indicate PU contributions to enhance capabilities or contribute to operations
 - PU proposal may request up to 40% of the available user beam time per run cycle
 - Valid for up to 3 years (up to 5 years in special cases)
- Examples of PU Contributions:
 - contributing a sophisticated endstation
 - contributing staff & equipment to provide user support for a given program
 - construction or operation of a beamline

Evaluation Criteria:

- Scientific and/or technical innovation and originality
- Scientific, technical, and/or industrial importance
- Education and/or outreach importance
- Capability of proposal group and quality of past performance based on track record (e.g., publications, patents, ...)
- Experimental plan and technical feasibility

NSLS-II Calls for 1st Experiments and Partner User Proposals

Call for NSLS-II First Experiments Proposals

May 15, 2013

1. INTRODUCTION

The National Synchrotron Light Source II (NSLS-II) is a highly optimized 3rd generation synchrotron facility currently under construction at Brookhaven National Laboratory. When fully commissioned and built out, NSLS-II promises to provide unprecedented high brightness and photon flux as well as beam stability over a broad range of photon energies from infrared to hard x-rays, and be able to accommodate at least 58 beamlines for a wide-range of scientific programs from physical sciences to biological and life science research.

NSLS-II is scheduled to start science-commissioning operations in October 2014 with an initial suite of the following seven beamlines:

- Hard X-ray Nanoprobe (HXN),
- Inelastic X-ray Scattering (IXS),
- Coherent Hard X-ray Scattering (CHX),
- Coherent Soft X-ray Scattering and Polarization (CSX-1 and CSX-2),
- Submicron Resolution X-ray Spectroscopy (SRX), and
- X-ray Powder Diffraction (XPD).

These beamlines are designed and constructed to fully exploit the most advanced and world-leading hard and soft x-ray capabilities that NSLS-II can provide, and will enable new scientific research opportunities. More information on this suite of beamlines and their capabilities can be found on the NSLS-II beamlines website at <http://www.bnl.gov/ps/nsls2/beamlines/>.

In order to fully engage the scientific community in these exciting early science opportunities, NSLS-II plans to allocate beam time to research teams selected from the community to conduct user-assisted science commissioning experiments at all seven NSLS-II project beamlines as early as in October 2014. These experiments will be selected based on the experiment proposals initiated by the experiment team, peer-reviewed by a Proposal Review Panel, and approved by NSLS-II management.

2. NSLS-II FIRST EXPERIMENTS WORKSHOP

In order to facilitate discussions on first experiments with the broad scientific user community, an NSLS-II First-Experiments Workshop will be held at Brookhaven National Laboratory, August 12-13, 2013. This two-day Workshop will consist of a plenary session and five parallel sessions. The Plenary Session will start with talks on grand-challenge science topics in several key research fields, followed by facility presentations to update the community about the early scientific capabilities at the initial suite of NSLS-II beamlines.

The five parallel sessions are designed to provide forums to facilitate more detailed discussions about potential first experiments at specific beamlines and the formations of the experiment teams. The parallel sessions will take the following research themes for specific NSLS-II beamlines:

Call for NSLS-II Partner User Proposals

May 15, 2013

1. INTRODUCTION

National Synchrotron Light Source II (NSLS-II) is a highly optimized 3rd generation synchrotron facility that provides high brightness and photon flux as well as exceptional beam stability over a broad range of photon energies from infrared to hard x-rays. When fully built out, NSLS-II will be able to accommodate at least 58 beamlines for scientific programs, with additional beamlines possible through canted insertion devices and multiple experiment hutches.

Accessing beam time at NSLS-II beamlines is governed by the *NSLS-II User Access Policy* (<http://www.bnl.gov/nsls2/docs/pdf/UserAccessPolicy.pdf>). Photon Sciences (PS) management recognizes the potential for contributions from the scientific and industrial community to significantly enhance both NSLS-II beamline development and operations, and thus encourages interested user groups to become partner users of the facility. Partner users receive a certain percentage of the available beam time on a beamline in recognition of their contributions. As explained in the *NSLS-II User Access Policy*, each beamline at NSLS-II may allocate up to 40% of the available beam time for one or more approved partner user proposals for a given run cycle.

2. CALL FOR PARTNER USER PROPOSALS

NSLS-II invites interested user groups to submit Partner User Proposals (PUPs) that describe the proposed partnership with PS to enhance the development and operations of NSLS-II. As stated in the *NSLS-II User Access Policy*, all proposed partnerships are reviewed for beamline feasibility by beamline staff, scientific and/or societal impact by a Proposal Review Panel, and programmatic compatibility by PS management. These reviews are aimed at ensuring the proposed partnership will enhance the scientific capabilities and the overall impact of NSLS-II beamlines. See *NSLS-II User Access Policy* for more details on Partner User Proposal review criteria.

This Call for PUPs intends to cover perspective partner user proposals on all beamlines that are currently under construction at NSLS-II. All PUPs for this round should be submitted by September 1, 2013, to the NSLS-II User Administration Manager, Gretchen Cisco, at gcisco@bnl.gov. PUPs submitted after this date will be accepted but will be reviewed in the next round of Call for PUPs.

A Partner User Proposal (PUP) must contain the following information:

A. Basic Information (1-2 pages):

Title of the Proposal
NSLS-II Beamline: *Beamline or Acronym*

First Experiments Proposals

- First Experiments Proposals Contents:
 - Basic Information (1-2 pages)
 - Experiment Title
 - Names and Contact Information
 - Beamline where the proposed experiment will be performed
 - Proposed Experiment and Impact (2-6 pages)
 - Description of the proposed experiment, including the science case, materials specimen, type of experiment, experiment plan, data reduction and analysis, and expected outcome
 - Potential issues and risks, including experiment safety, and mitigation plans
 - Experience and Expertise of the Research Team (1-2 pages)
 - Brief description of team's relevant prior experience, and key publications.
- A strongly collaborative team of researchers covering all aspects of a well-planned SR experiment: scientific expertise and experimental methodology, novel specimens and sample environment, data analysis and theory support

NSLS-II First Experiments Proposals (FEP)
All First Experiment Proposals should be submitted by November 1, 2013
Submit to NSLS-IIproposals@bnl.gov

NSLS-II solicits First Experiment Proposals for user-assisted science-commissioning experiments to be conducted at the initial suite of NSLS-II beamlines as early as October 2014.

A. Basic Information (1-2 pages) include

Provide experiment title:
Enter experiment title

Enter names and contact information of the PI and the experiment team:
Enter PI name and contact information
Enter team member name and contact information

Select beamline where the proposed experiment will be performed:
 Hard X-ray Nanoprobe (HNO)
 Inelastic X-ray Scattering (IXS)
 Coherent Hard X-ray Scattering (CHX)
 Coherent Soft X-ray Scattering (CSX-1)
 Coherent Soft X-ray Polarization (CSX-2)
 Submicron Resolution X-ray Spectroscopy (SRX)
 X-ray Powder Diffraction (XPD)

Partner User Proposals

- Partner User Proposals Contents:
 - A. Basic Information (1-2 pages):**
 - Title of the Proposal; NSLS-II Beamline: *Beamline or Acronym*
 - Principal Investigator and Collaborators: *Name, Affiliation, Address, Contact Information*
 - B. Proposed Program and Impact (3-5 pages):**
 - Description of the proposed program to be conducted at the specified beamline, how this program would be enhanced or enabled by the proposed contribution, and the scientific and/or societal impact of this program, including the benefits to stakeholders funding the program and to the general user programs overall
 - C. Proposed Contributions and Partnership Terms(2-3 pages):**
 - Detailed description of the proposed contribution and terms of the partnership that the proposal team intends to establish at NSLS-II. Contributions can include both instrumentation/facility to enhance beamline capabilities and staffing in support of beamline operations. For instrumentation/facility contributions, include an estimated replacement cost for the proposed hardware, how it is being funded, and the resources needed from NSLS-II to integrate the contributed hardware into the beamline. For staffing contributions, include a brief description of type of staffing (scientific, postdoc, or tech) on an annual basis and how to fund them
 - The proposed terms of the partnership should include, among other things, requested beam time (in percentage of available beam time at the beamline) that is required to achieve the program described in Section B, and how the team intends to share with NSLS-II the operating responsibilities at the beamline
- All proposed partnerships are reviewed for beamline feasibility by beamline staff, scientific and/or societal impact by a Proposal Review Panel, and programmatic compatibility by PS management. These reviews are aimed at ensuring the proposed partnership will enhance the scientific capabilities and the overall impact of NSLS-II beamlines

Proposal Review Panel (PRP)

Spectroscopy	Scattering & Coherence	Inelastic Excitations	Structural Science	Nanoscale Studies	Spectral Microscopy	Structural Biology
<i>McNulty</i>	<i>Wang</i>	<i>Durbin</i>	<i>Chupas</i>	<i>Larson</i>	<i>Sutton</i>	<i>Wasserman</i>
Dent	D Shapiro	Finkelstein	Hemley	Harder	Finney	Fischetti
Ravel	Landes	S Shapiro	Wilkinson	Lai	Heald	Wiener
	Toney		Budai		Paterson	

- NSLS-II Proposal Review Panel consists of several (6-12) subpanels, each focusing on a specific research area
- Each subpanel is composed of a number of scientific peers, mostly from outside Photon Sciences (PS), with a range of balanced expertise and experience in the specific field of research
- One member of each subpanel is appointed by PS as the Subpanel Chair
- The membership for each subpanel may change from run-cycle to run-cycle depending on the number of proposals received in a given field

Proposal Review Guidelines

- Each proposal is rated by PRP on scale of 1 (highest) to 5 (lowest)
- It is expected that each proposal is evaluated by at least two reviewers assigned by sub-panel chair
 - Reviewers are expected to read and evaluate the assigned proposals before the review meeting;
 - Goal is for each subpanel to arrive at a consensus rating and produce a brief report (a few sentences or a couple of paragraphs) for each proposal at the end of the review meeting
- Review Meeting format:
 - Joint session where PS management will brief the PRP about NSLS-II
 - Subpanel parallel sessions; Chair may request add'l review by another subpanel for some proposal if needed
 - Brief closeout session about procedures and any issues; No public disclosure of actual ratings as we want to keep the reviews anonymous

Additional Guidelines

- For first expt. proposals, the total number of days required to accomplish the proposed experiment should be suggested. (Any additional comments regarding optimal beam time schedules/increments are also welcome).
- For PU proposals, a careful assessment of the impact of the contribution made by the PUP to the General User program, both positive and negative, is needed as well as an assessment of the beam time required to accomplish the goals of the partnership.



Questions