

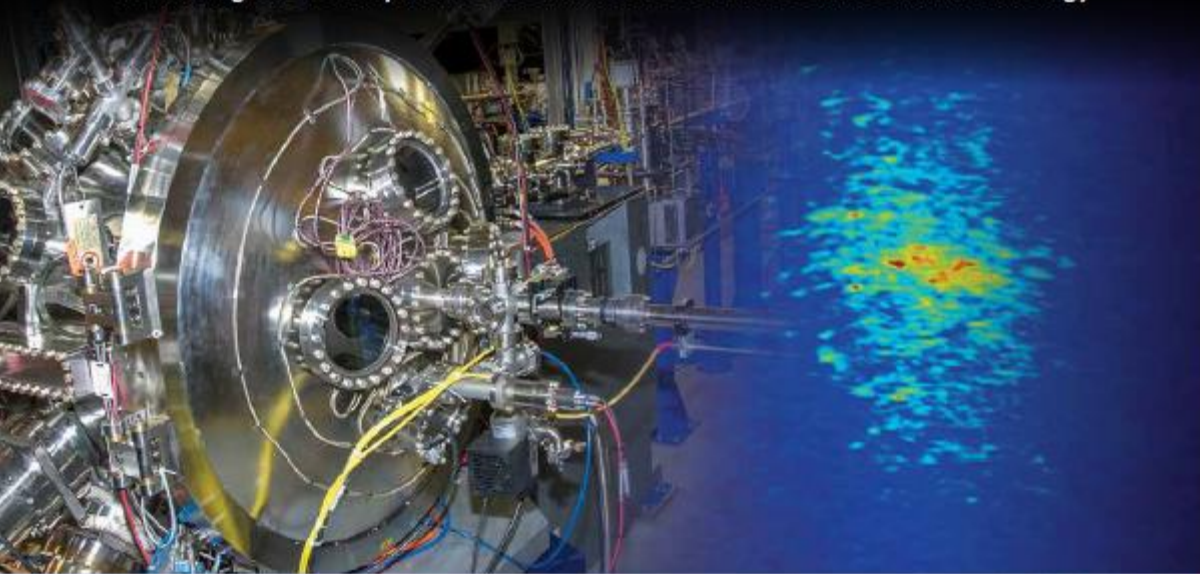
NSLS-II Strategic Planning Workshop and SRI 2015 Report

Qun Shen
UEC Town Meeting
August 5, 2015



NSLS-II Strategic Planning Workshop

Continuing the development of beamlines to advance science and technology



September 24-25, 2015

Brookhaven National Laboratory

www.bnl.gov/nsls2spw

The 2015 NSLS-II Strategic Planning Workshop will launch selection of the next wave of NSLS-II beamlines. Following review of the current NSLS-II strategic plan and the new beamline development process, invited presentations from leaders in the field will provide background for the central focus of the workshop – an 'Open Call' for contributed talks from the User Community on new beamline concepts and the partnerships to drive them.

Workshop Goals:

- Review NSLS-II current suite of capabilities and identify capability gaps
- Identify opportunities for development of world-leading capabilities or novel approaches
- Identify shortages in capacity
- Identify university /industry and NSLS-II co-leads to drive the development of new beamline concepts

Strategic Planning Process in Progress

From 2014		Scattering						Diffraction						Struct Biology						Spectroscopy						Imaging																			
	NSLS-II Beamline	IXS	CHX	CSX-1	SIX	SMI	CMS	HIX	XPD-1	XPD-2	ISR	BMM	IXD	MPP	HEX	MRE	4DE	TEC	FMX	AMX	LIX	NYX	LAX	SM3	XFP	CSX-2	ESM	ISS	SST-1	SST-2	XAS	QAS	FIS/MET	TES	SRX	XFM	HXN	FXI	MID/HXT	XFN	IRI	CDI	MXD	SMF	STX
•Emergent Behavior from Complexity																																													
•Correlated systems (magnetism, superconductivity, multi-ferroics, ...)																																													
•Collective dynamics (phonons, magnons, electronic excitation, nanoscale excitation, ...)																																													
•Non-equilibrium physics (phase transition, jamming, viscous flow, ...)																																													
•Soft matter & biomaterials (nature inspired materials, disorder dynamics, ...)																																													
•Mastering Materials Synthesis and Properties																																													
•Materials genome (novel materials, nanoparticles, structural phases, grain mapping, ...)																																													
•Materials under extreme conditions (high P, high T, high field, radiation environment, ...)																																													
•Materials processing (annealing, fatigue, crack formation, deformation, in operando, ...)																																													
•Materials synthesis and growth (nucleation mechanisms, growth kinetics, ...)																																													
•Energy Systems and Materials																																													
•Catalysis (heterogenous catalysis, in-situ analysis, redox states, ...)																																													
•Energy storage (electrochemistry, electrolyte structures, battery systems operando, ...)																																													
•Materials for nuclear energy (defect formation, irradiated chemistry changes, ...)																																													
•Photovoltaics (solar cells, artificial photosynthesis, ...)																																													
•Environment and Earth Ecosystem																																													
•Geochemical processes at Earth surface (nutrients and toxins transport, ...)																																													
•Biogeochemistry of metals (element cycling, ...)																																													
•Plant ecosystems (microbes, metal uptake, biofuels, ecological impact, ...)																																													
•Climate and atmospheric science (CO2 sequestration, aerosol particles, ...)																																													
•Structures and Functions of Life																																													
•Structural biology (structures of bio-macromolecules & assemblies, protein folding, ...)																																													
•Enzymatic activities (active sites, transient structures, ligand binding, drug designs, ...)																																													
•Cell and systems biology (protein functions, cell assemblies, tissue analysis, ...)																																													
•Biological imaging & bioengineering (evolutionary biology, biomechanics, ...)																																													

Workshop Agenda

NSLS-II Strategic Planning Workshop

Thursday, September 24

		Plenary Session		
Start	Finish	Large Physics Seminar Room		
8:00 am	8:30 am	Breakfast (provided) - Physics Lounge		
8:30 am	8:45 am	<i>Welcoming Remarks - Jim Misewich</i>		
8:45 am	9:30 am	<i>Strategic Plan & Workshop Charge - John Hill</i>		
9:30 am	10:15 am	<i>Beamline Development Process - Qun Shen</i>		
10:15 am	10:45 am	Coffee Break - Physics Lounge		
10:45 am	11:15 am	<i>Gerd Materlik (UCL)</i>		
11:15 am	11:45 am	<i>Franz Hennies (MAX-IV)</i>		
11:45 am	12:45 pm	Lunch (provided) - Physics Lounge		
		Break-Out Sessions		
Start	Finish	Emerging Properties from Complexity Large Physics Seminar Room	Materials Discovery & Operando Hamilton Seminar Room	Mesoscale Imaging Biology & Environment Large CFN Conference Room
1:00 pm	1:30 pm	<i>Oleg Shpyrko (UC San Diego)</i>	<i>Paul Fuoss (ANL)</i>	<i>Tony Lanzirotti (ANL)</i>
1:30 pm	2:00 pm	<i>Mathieu LeTacon (Max Planck Inst)</i>	<i>Joel Brock (CHESS)</i>	<i>Carolyn Larabell (UC San Francisco)</i>
2:00 pm	2:30 pm	<i>Christopher Soles (NIST)</i>	<i>Jinghua Gou (ALS)</i>	<i>So Iwata (SACLA)</i>
2:30 pm	3:00 pm	Coffee Break - Physics Lounge	Coffee Break - entry Hamilton Sem. Rm.	Coffee Break - entry CFN Conf Room
3:00 pm	4:30 pm	Concept Talks: Emerging Prop Complexity	Concept Talks: Mat Discovery & Operando	Concept Talks: Meso Imaging Bio & Enviro
		Events		
5:00 pm	6:00 pm	Reception - NSLS-II Lobby		
6:00 pm	6:30 pm	Tours NSLS-II		
		Dinner - on your own		

Co-sponsored by NSLS-II UEC

Workshop Agenda

NSLS-II Strategic Planning Workshop

Friday, September 25

		Plenary Session		
Start	Finish	Large Physics Seminar Room		
8:00 am	8:30 am	Breakfast (provided) - Physics Lounge		
8:30 am	9:00 am	Harald Reichert (ESRF)		
		Break-Out Sessions		
Start	Finish	Emerging Properties from Complexity Large Physics Seminar Room	Materials Discovery & Operando Hamilton Seminar Room	Mesoscale Imaging Biology & Environment Large CFN Conference Room
9:30 am	11:00 am	Concept Talks: <i>Emerging Prop Complexity</i>	Concept Talks: <i>Mat Discovery & Operando</i>	Concept Talks: <i>Meso Imaging Bio & Enviro</i>
		Plenary Session		
11:00 am	11:30 am	Coffee Break - Physics Lounge		
		Large Physics Seminar Room		
11:30 am	12:30 pm	Break-Out Summaries		
12:30 pm	1:30 pm	Lunch (provided) - Physics Lounge		

- Everyone is invited to participate in this important event
- This workshop will launch the development process for the next rounds of beamlines at NSLS-II
- Beamline development proposals (BDPs) will follow an updated procedure <https://www.bnl.gov/nsls2spw/files/pdf/BDP-Process.pdf>

Four Steps in Beamline Development Process

- Discuss with NSLS-II management to determine whether the proposed concept is aligned with the strategic plan for the facility and likely to meet all of the review criteria (next slide)
- Submit a Beamline Development Pre-Proposal (BDPP, up to 3 pages).
 - 1st BDPP deadline is October 30, 2015. Future BDPPs can be submitted by GUP deadlines. BDPPs are reviewed by NSLS-II management with solicited external input as required
 - If a BDPP is approved, NSLS-II commits to partnering with the BDPP team in developing a high-quality BDP, including committing resources to hold a workshop and to assist in beamline pre-conceptual design
- Submit the BDP before the assigned BDP submission deadline
 - BDP is up to 10 pages and is similar in structure to the BDPP with each section providing more detailed information
- Prepare the Funding Proposal(s) for submittal
 - At this stage, an integrated project team will be formed comprised of NSLS-II staff including scientific, engineering, and project controls support together with selected members of the BDP team

BDP Review Criteria

- Science Case:
 - Potential to address important scientific and/or societal questions, and consistent with the facility goals as stated in the NSLS-II Strategic Plan
- Funding:
 - Credible potential funding scenario for the projected beamline costs
- User Demand:
 - Evidence of interest, engagement, and support by the user community
- Performance:
 - Performance necessary to fulfill its scientific mission, with characteristics well matched to the NSLS-II source
- Technical Feasibility
- Portfolio Impact:
 - Contribute to a balanced NSLS-II portfolio of beamline techniques and complement beamline resources at other synchrotron facilities
- Quality of Proposers



International Conference SRI July 6-10, 2015

*Co-sponsored by a number of
sponsors including NSLS-II UEC*

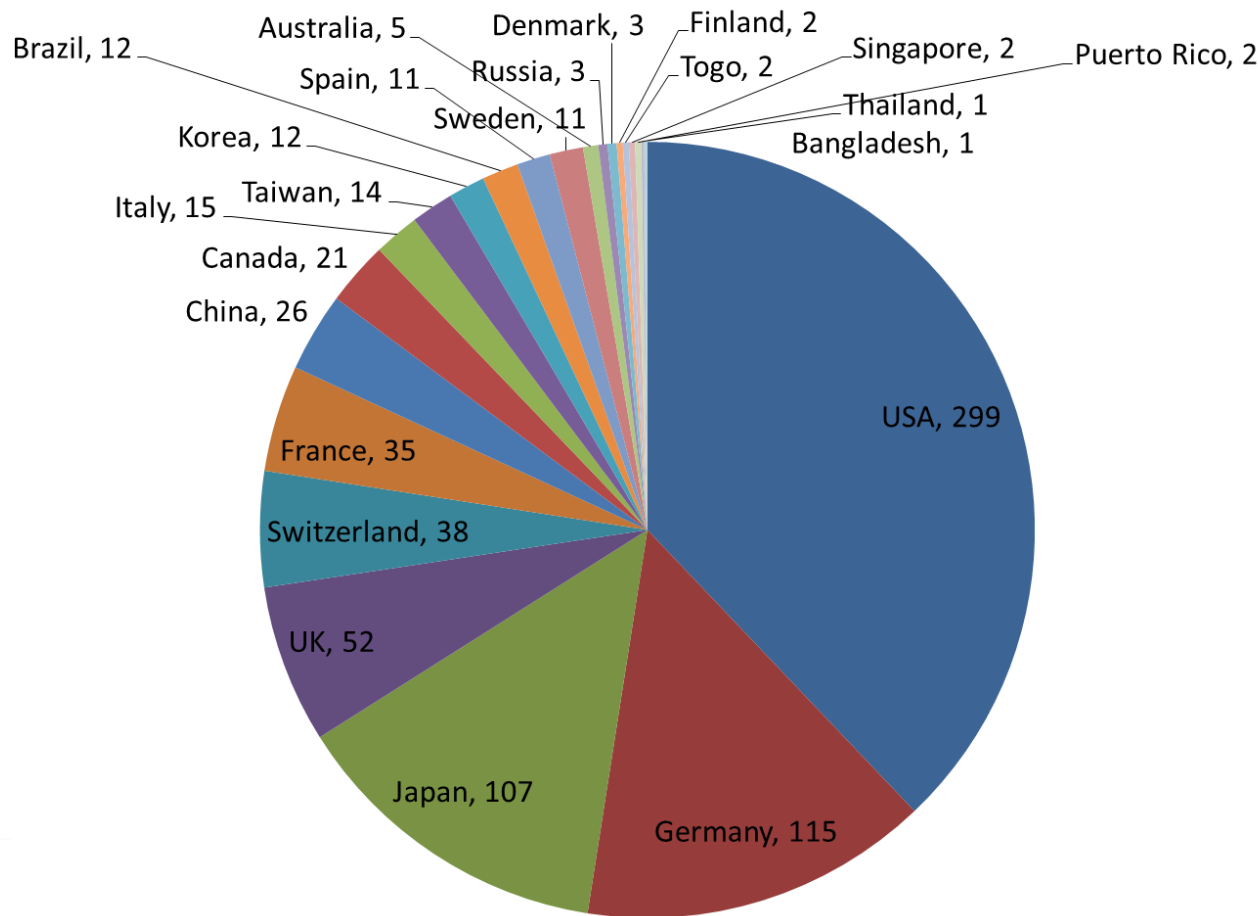
Keynote & Plenary Talks	14
Oral Presentations	175
Poster Presentations	438
<hr/> Total	<hr/> 627

Capturing the Light of Science & Innovation

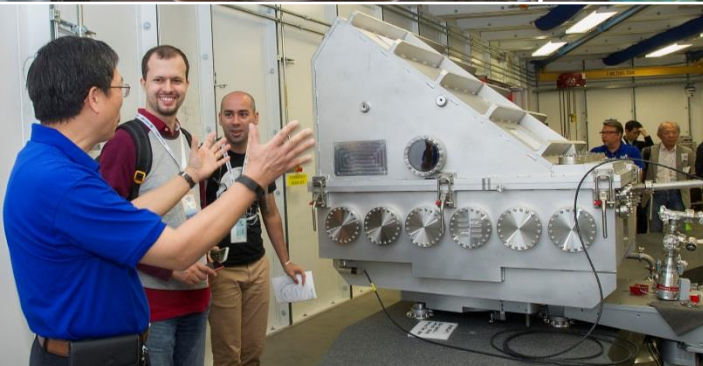
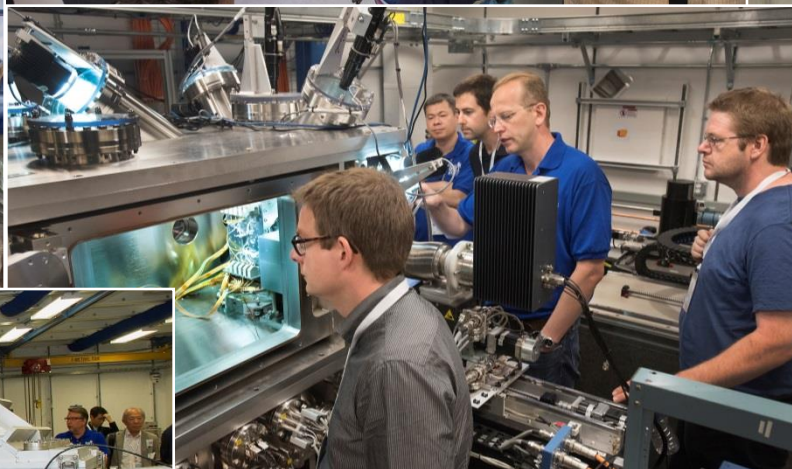
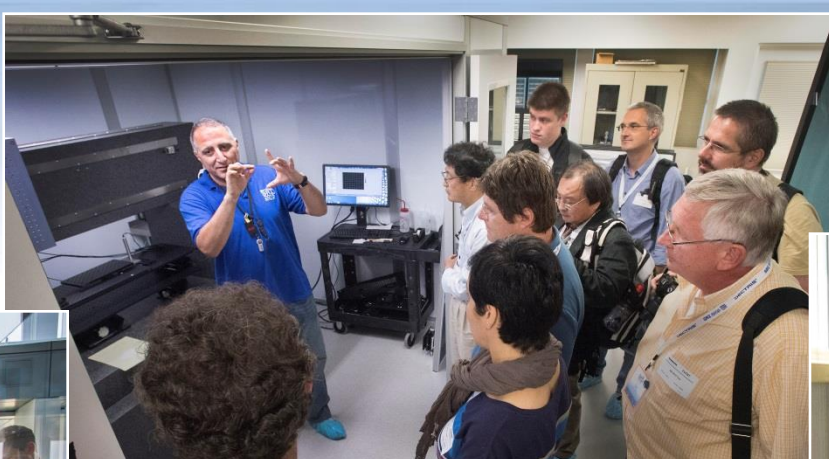




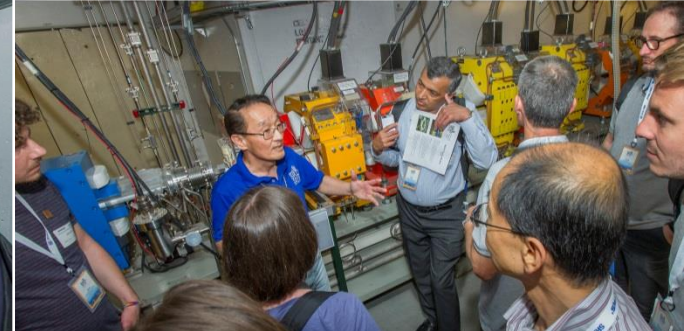
789 Registered Participants Representing 23 Countries



USA	299
Germany	115
Japan	107
UK	52
Switzerland	38
France	35
China	26
Canada	21
Italy	15
Taiwan	14
Korea	12
Brazil	12
Spain	11
Sweden	11
Australia	5
Russia	3
Denmark	3
Finland	2
Togo	2
Singapore	2
Puerto Rico	2
Thailand	1
Bangladesh	1



NSLS-II Tour



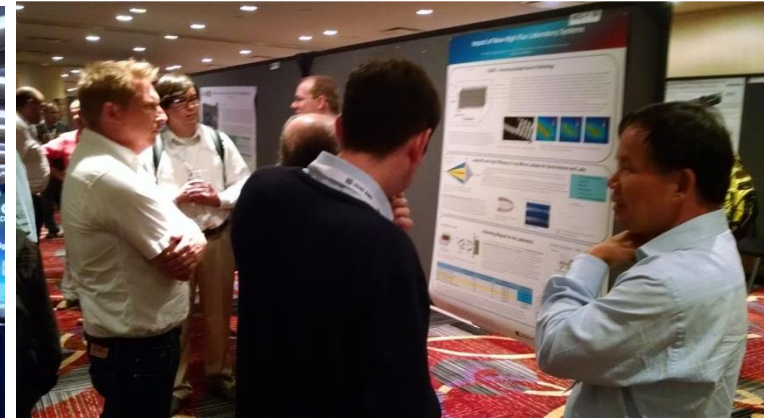


Well Attended Plenary & Oral Sessions





Vendor Exhibition and Poster Sessions



67 vendors
438 posters



Banquet Dinner

Broadway Ballroom, 6th Floor
Marriott Marquis, New York City
Thursday, July 9, 7:00 PM - 9:30 PM

After-Dinner Speaker:
Professor Joel Hurowitz
Stony Brook University



*NASA's Mars 2020 Rover Mission:
The PIXL in-situ X-ray Investigation
and Opportunities for the Analysis
of Returned Martian Samples*



Welcome Reception at Broadway Lounge



~430 dinner attendees

Next SRI
will be in
Taipei,
late May
2018



TPS
Taiwan Photon Source



SRI 2018

INTERNATIONAL CONFERENCE FOR
SYNCHROTRON RADIATION
INSTRUMENTATION

TAIPEI, TAIWAN

