

NSLS-II Project Beamline Conceptual Designs

November 10 2009, by Qun Shen

(PhysOrg.com) -- The NSLS-II Experimental Facilities Division achieved an important milestone in September when the conceptual design reports for the initial six project beamlines were completed and submitted to NSLS-II management.

The construction of these beamlines is funded within the NSLS-II project. They were selected just before the Critical Decision 3 (CD-3) review in September 2008, after considerable interactions with the community that resulted in 11 beamline proposals. These proposals were reviewed by external peers and by the former Experimental Facilities Advisory Committee, leading to the final selection of the initial suite of beamlines.

The six beamlines include the research programs in inelastic x-ray scattering, hard x-ray nanoprobe, coherent hard x-ray scattering, coherent soft x-ray scattering and [polarization](#), submicron resolution x-ray [spectroscopy](#), and x-ray powder diffraction. For each beamline, a beamline advisory team (BAT) has been established to represent the broader scientific community in a specific area of scientific interest. The collective membership for the six advisory teams currently totals more than 50 researchers, covering a broad range of scientific disciplines, including materials and energy research, environmental and earth sciences, and biology.

With the arrivals of all six group leaders and additional scientific and engineering staff in fiscal year 2009, the NSLS-II Experimental

Facilities Division has been fully engaged in project beamline designs and optics R&D programs. During the fiscal year, the BATs for each of the six beamlines held at least two meetings at BNL to discuss the scientific scope and technical requirements and to review progress in optics R&D and beamline designs.

From August to early September, a series of internal [conceptual design](#) safety reviews were conducted on the project beamlines. The purpose of these reviews - performed by the Beamline Safety Review Committee, chaired by Zhong Zhong at the NSLS - was to integrate safety considerations early in the beamline designs. The beamline groups at NSLS-II appreciate the extra efforts made by the committee members in this important process.

After the safety reviews and the receipt of the conceptual design reports, an independent conceptual design review was conducted by NSLS-II on October 13-14 to provide an assessment of the conceptual designs. The external review committee, chaired by Mohan Ramanathan of Argonne National Laboratory, consisted of eight scientists from outside Brookhaven who are not directly involved in the six project beamlines. During the review, the committee evaluated design adequacy for meeting the scientific scope, design maturity for proceeding to detailed designs, cost and schedule, staffing levels for carrying out the design and construction—as well as risks and mitigation plans—and interface issues with other parts of the project. Overall, the review provided independent assessment and critical inputs to the beamline groups, and was very helpful in furthering the beamline designs by the NSLS-II Experimental Facilities Division in the coming year.

Provided by Brookhaven National Laboratory ([news](#) : [web](#))

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