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Source II National Synchrotron Light – the First Three Years

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Abstract

National Synchrotron Light Source II (NSLS-II) is one of the newest 3 GeV storage-ring synchrotron facilities in the world. It is designed and built with a 792 m circumference, 500 mA operating current, and a horizontal emittance of ~0.6 nm-rad with optimized DBA lattice (http://www.bnl.gov/ps/). Since the start of its user operations in July 2015, NSLS-II has rapidly ramped up its science capabilities and user programs. As of August 2018, NSLS-II operates at 400 mA top-off, and has 26 beamlines in operations and 3 other beamlines under construction. In fiscal year that ended September 30, 2017, more than 1000 distinct users conducted their experiments at NSLS-II. This number is projected to increase to above 1300 in 2018.

The vision for NSLS-II is to develop world-leading scientific capabilities and leverage them to enable and conduct a broad range of high-impact, discovery class science and technology programs to address the critical scientific grand challenges in energy security, advanced materials synthesis and manufacturing, the environment, and human health. Working with the scientific community, NSLS-II has identified three science priority areas that will drive the research and development activities in the near term at NSLS-II: quantum and complex materials, operando chemistry and structural science, and multiscale structures and functions. In this talk, I will present the current status of our facility and beamlines, and our plans and initiatives to further expand our technical capabilities and enhance our science programs at NSLS-II.

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