National Synchrotron Light Source II achieves 'first light'

December 9 2014, by Chelsea Whyte

The team of scientists, engineers, and technicians at the Coherent Soft X-ray Scattering (CSX) beamline gathered around the control station to watch as the shutter between the beamline and the storage ring opened, allowing x-rays to enter the first optical enclosure for the first time.

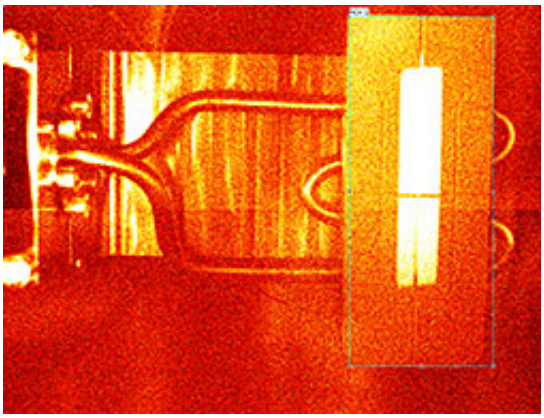
The brightest synchrotron light source in the world has delivered its first x-ray beams. The National Synchrotron Light Source II (NSLS-II) at Brookhaven Lab achieved "first light" on October 23, 2014, when operators opened the shutter to begin commissioning the first experimental station (called a beamline), allowing powerful x-rays to travel to a phosphor detector and capture the facility's first photons.

"This is a significant milestone for Brookhaven Lab, for the Department of Energy, and for the nation," said Harriet Kung, DOE Associate Director of Science for Basic Energy Sciences. "The National

Synchrotron Light Source II will foster new discoveries and create breakthroughs in crucial areas of national need, including energy security and the environment. This new U.S. user facility will advance the Department's mission and play a leadership role in enabling and producing high-impact research for many years to come."

When the x-rays hit the detector at the Coherent Soft X-ray Scattering (CSX) beamline, cheers and applause rang out across the experimental hall as a crowd of scientists, engineers, and technicians celebrated a milestone many years in the making.

"This achievement begins an exciting new chapter of synchrotron science at Brookhaven, building on the remarkable legacy of NSLS, and leading us in new directions we could not have imagined before," said Laboratory Director Doon Gibbs. "It's a great illustration of the ways that national labs continually evolve and grow to meet national needs, and it's a wonderful time for all of us. Everyone at the Lab, in every role, supports our science, so we can all share in the sense of excitement and take pride in this accomplishment."



Inside the beamline enclosure, a phosphor detector (the rectangle at right) captured the first x-rays (in white) which hit the mark dead center.

"We have been eagerly anticipating this culmination of nearly a decade of design, construction, and testing and the sustained effort and dedication of hundreds of individuals who made it possible," said Steve Dierker, Associate Laboratory Director for Photon Sciences. "Soon researchers from around the world will start using NSLS-II to advance their research on everything from new energy storage materials to developing new drugs to fight disease. I'm very much looking forward to the discoveries that NSLS-II will enable, and to the continuing legacy of groundbreaking synchrotron research at Brookhaven."

Work continues with additional beamlines coming online for commissioning, and even the collection of preliminary data from these early beams. Each new achievement portends a bright future for science at NSLS-II.

Provided by Oak Ridge National Laboratory