Workshop Organization and Breakout Logistics

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Workshop on Science Opportunities with an MBA Lattice
Advanced Photon Source
October 21-22, 2013

Goals for the Workshop

- *Inform the APS community* concerning the properties of an MBA low-emittance lattice being considered in the APS Upgrade.
- *Gather input on the new science opportunities* offered by such a source.
- Address how our current suite of beamlines map onto these envisioned science opportunities, and *what new capabilities are needed.*
- *Explore the technical advances in optics, detectors, and undulators* that are required to realize these science opportunities.
- *Identify areas that require R&D efforts* to achieve the ultimate performance from an MBA x-ray source.

Input from the user community and APS staff essential

Community Engagement Plan

- August:

  - Initial evaluation of impact on the Upgrade and draft White Paper on incorporating MBA lattice into APS Upgrade

  http://www.aps.anl.gov/Upgrade/Documents

- September/October:

  - Engage user community, APS staff and other Labs in evaluating opportunities and organizing October workshop

- October 21-22:

  - Workshop to optimize incorporation of MBA into APS-U, including science opportunities for all communities

- November 6-7:

  - APS Scientific Advisory Committee review of Workshop report

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Workshop Breakout Areas

Breakout Session	Internal Chair	External Chair
Scanning Probe Imaging	Stefan Vogt	Tonio Buonassisi
Coherent Diffraction and Phase Contrast Imaging, XPCS	Jin Wang	Ian Robinson
Timing and Dynamics	David Keavney	Paul Evans
Interface and Single Crystal Diffraction	Jon Tischler	Paul Fuoss
Structural and High Energy Scattering, SAXS	Ian Ilavsky	Lyle Levine
Spectroscopy and Inelastic Scattering	Steve Heald	Clem Burns
Macromolecular Crystallography	Robert Fischetti	Bill Weis

Preworkshop Activities

- Formed subject teams with internal & external chairs
- Meetings with the local communities for each of the seven breakout areas
  - First to inform, educate about the MBA lattice
  - Second to gather input, prepare for the workshop breakout sessions
    - Typically these meetings had 30-50 people
- Series of optics simulation tutorials by Ruben Reininger
  - Limited to 10 per session
  - So far, two series (each three classes) given
  - Further series being planned to meet demand
- Directed MBA-related Seminars
  - Properties of the MBA Lattice – Michael Borland
  - Beamline Optics for the APS with MBA Lattice – Lahsen Assoufid
  - Thin Film Optics for the Future APS – Ray Conley
  - Detectors for the APS MBA Lattice – Bob Bradford
  - A Quick Primer on Synchrotron Sources: How Would an MBA Lattice Change My x-ray Beam? – Jonathan Lang
  - Undulator Performance Characteristics for the MBA Lattice – Roger Dejus
    - All talks well attended
    - All talks posted on Workshop webpage

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  - Engage user community, APS staff and other Labs in evaluating opportunities and organizing October workshop
- October 21-22:
  - Workshop on New Science Opportunities Provided by a Multi-bend Achromat Lattice at the APS
- November 6-7:
  - APS Scientific Advisory Committee review of Workshop report draft

Workshop on Science Opportunities with MBA Lattice

Monday, October 21

9:00-11:30 Plenary Session

The MBA Lattice - Building the Next Generation Storage Ring – Brian Stephenson

Source Properties of a Potential MBA Lattice at the APS – Glenn Decker

Optics, Detector, and Instrumentation Developments for High Brightness x-ray Sources – Dennis Mills

1:00-5:00 Breakout Sessions

Scanning Probe Imaging

Coherent Diffraction and Phase Contrast Imaging, XPCS (E1100/1200)

Timing and Dynamics (Auditorium)

Interface and Single Crystal Diffraction (438-C010)

Structural and High Energy Scattering, SAXS (431-C010)

Spectroscopy and Inelastic Scattering (Lower Gallery)

Macromolecular Crystallography (A1100)

Tuesday, October 22

9:00-11:00 Breakout Discussion and Report Preparation (same rooms)

11:00-12:00 Workshop Reports and Plenary Discussion (Auditorium)

1:30-4:30 Workshop Reports and Plenary Discussion (continued)

Workshop Organizing Committee

- *Dean Haeffner (chair)*
- *George Srajer*
- *Jonathan Lang*
- *Dennis Mills*
- *Mark Beno*
- *Connie Vanni*
- *Diane Wilkinson*
- *Denis Keane*