

ICFA FLS 2010 – Storage Ring Working Group – rev. 3-1-10

Charge to the future ring working group:

- A. Evaluate light source concepts and architectures that are beyond state-of-the-art and are presently in the conceptual or R&D stage and that would have transformational radiation characteristics.**
- B. Evaluate concepts that could significantly change the economics of construction and operation of advanced light sources. Assess the cost/performance trade-offs in terms of overall construction and operation cost, accessibility to researchers, etc.**

Monday March 1

Introduction

1:30-2:00

Introduction to working group – charge, agenda, goals, etc

Krinsky, Hettel

session time: 30 min

Session 1: New capabilities – very low emittance, compact sources (Y. Cai)

Charge: Identify present technical limitations for reaching future ring performance goals. Evaluate light source concepts and architectures that are beyond state-of-the-art and are presently in the conceptual or R&D stage and that could have transformational radiation characteristics. Evaluate concepts that could significantly change the economics and performance of advanced light sources.

2:00-4:05

Summary of the Low Emittance Rings Workshop 2010

C. Steier, LBNL

The Near Future Light Source: NSLS-II

W. Guo, NSLS-II

The MAX IV 3 GeV Storage Ring - Multibend Achromats for Ultralow Emittance

S. Leemann, MAX-IV

Lattice Design and Performance for PEP-X Light Source

Y. Nosochkov, SLAC

SPring-8 Upgrade Plan

T. Watanabe, SPring-8

4:30-6:10

Parallel tracking-based optimization of dynamic aperture and lifetime
with applications to the APS upgrade

M. Borland, APS

Multi-Objective Optimization of Dynamic Aperture

L. Yang, NSLS-II

Impedance and Collective Effects in Future Light Sources

K. Bane, SLAC

Discussion

session time: 200 min

25 min/talk

Tuesday March 2

Session 2: Machine operation and studies

(J. Safranek)

Charge: Identify present technical limitations for reaching future ring performance goals. Evaluate concepts that could significantly change the economics and performance of advanced and future light sources.

1:30-4:00

Lessons learned from machine studies on existing rings.

Experimental characterization of nonlinear optics

On-axis injection into small dynamic aperture

Experience with insertion devices at BESSY-II

Integrated instability and lattice design for ultimate rings – discussion

Impedance modeling of APS storage ring: current and APS upgrade

L. Nadolski

R. Bartolini

L. Emery

J. Bahrtdt

K. Harkay

Y.-C. Chae

4:30-5:00

Discussion

session time: 180 min

25 min/talk

Session 3a: New capabilities, short bunches, exotic modes. etc

(D. Robin)

Charge: Evaluate concepts and architectures that are beyond state-of-the-art and are presently in the conceptual or R&D stage and that could have transformational radiation characteristics and/or significantly change the economics and performance of advanced light sources.

5:00-6:15

Optical assisted emittance exchange for short bunch, lasing

Compton sources

Compact light sources

session time: 75 min

Dao Xiang, SLAC

Y. Wu, Duke

R. Ruth, SLAC

25 min/talk

Thursday March 4

Session 3b: New capabilities, short bunches, exotic modes. etc

(D. Robin)

Charge: Evaluate concepts and architectures that are beyond state-of-the-art and are presently in the conceptual or R&D stage and that could have transformational radiation characteristics and/or significantly change the economics and performance of advanced light sources.

9:00-10:30

Crab cavities and issues
Low alpha operation
Tailored bunch operation
Discussion

M. Borland, APS
X. Huang, SLAC
D. Robin, LBNL
group

session time: 90 min

25 min/talk, 15 min discussion

Session 4: Future ring technology and design issues

(G. Decker)

Charge: Identify present technical limitations for reaching future ring performance goals. Evaluate concepts that could significantly change the economics of construction and operation of advanced and future light sources. Assess the cost/performance trade-offs in terms of overall construction and operation cost, accessibility to researchers, etc.

10:45-12:30

Limits to achievable stability
Stability and alignment of nsls-II magnet system
Fast switching IDs and experience with the APS CPU
Normal-conducting crab cavity design

G. Decker, APS
A. Jain, NSLS-II
L. Emery, APS
V. Dolgashev, SLAC

1:30-3:00

Cost saving design choices for MAX-IV
Status of CANDLE Synchrotron Light Source Project in Armenia
Photon source and optics considerations
Discussion

S. Leemann, MAX-IV
V. Tsakanov, CANDLE
T. Rabedeau, SLAC

session time: 195 min

25 min/talk, 15 min discussion

Session 5: Discussion and session summary preparation

3:00-4:00

Session 1
Session 2

Y. Cai
J. Safranek

4:30-6:00

Session 3
Session 4
Summary

D. Robin
G. Decker
Krinsky, Hettel

session time: 150 min

Brightness Envelopes

not including SC IDs

