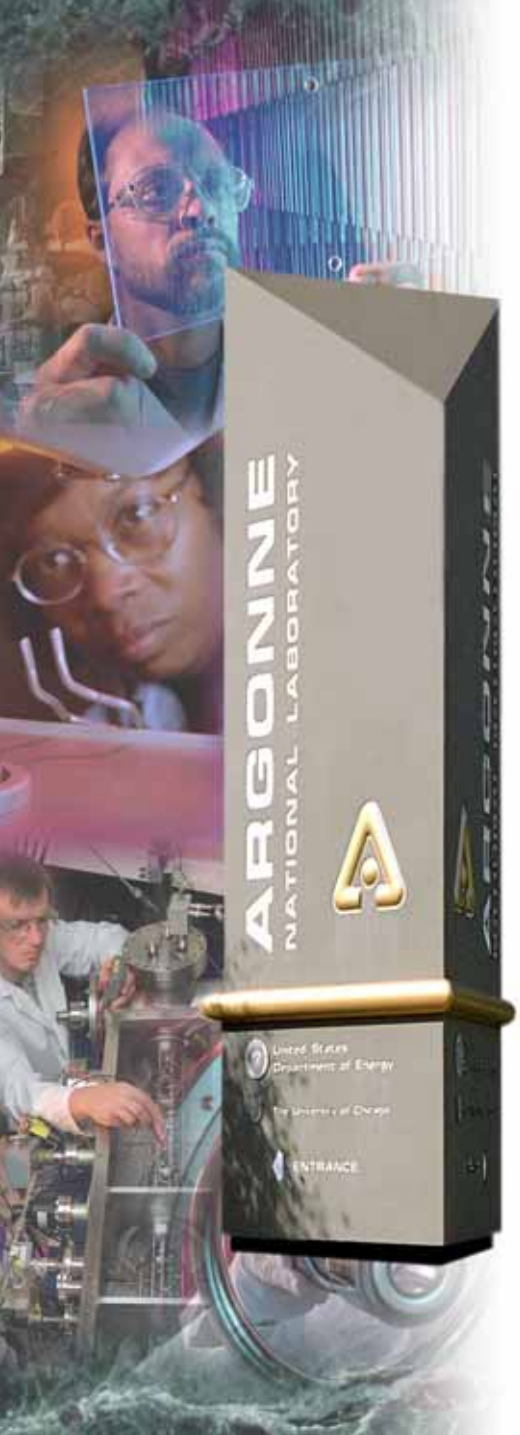


Summary of the 3-Way Meeting

Efim Gluskin

APS/Users Monthly Operations Meeting
December 16, 2004
Advanced Photon Source

Office of Science
U.S. Department of Energy

A U.S. Department of Energy
Office of Science Laboratory
Operated by The University of Chicago

SPring-8 Aerial View

Three-Way Meeting

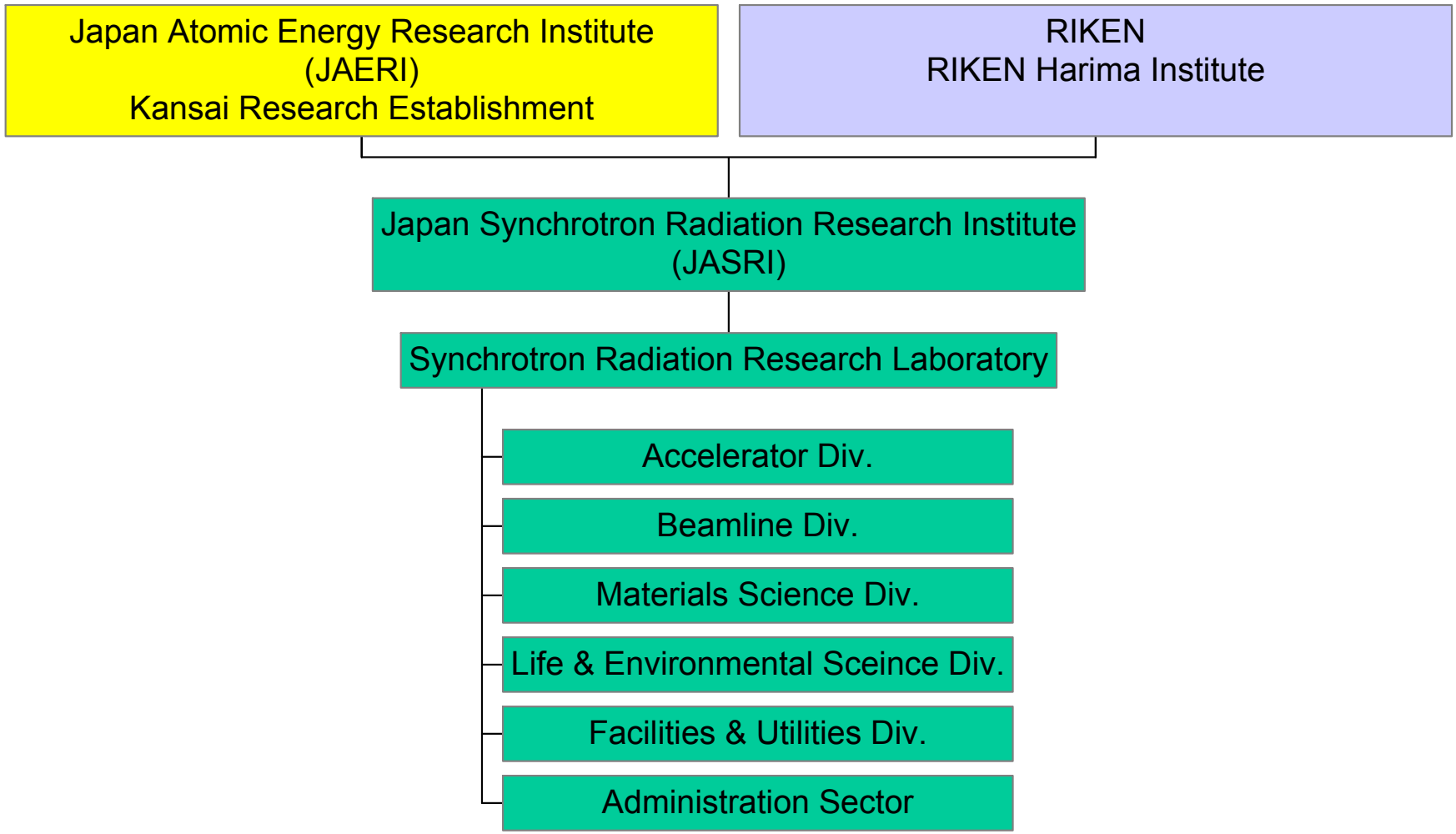
The Utilization of the unique properties of SR: the potential and limits

(key words: coherence, high energy, high brilliance, pulse characteristics)

9 November

9:10 - 11:10	General session I
	Status of each facility: the three General Directors
9:10 - 9:40	A. Kira, SPring-8
9:40 - 10:10	M. Gibson, APS
10:10 - 10:40	W.G. Stirling, ESRF
10:40 - 11:00	Coffee Break
11:00 - 12:30	General session II
11:00 - 11:15	*1. Summaries from optics and Detector Workshops:* T. Ishikawa & N.Yagi
11:15 - 11:40	*2. Management Issues (User issues, staff participation in decision-making, scientific output – how to define and measure, the problem of User Fee)*: H. Ohno(SPring-8)
11:40 - 12:05	*Beamtime allocations and modes of access to the APS:* *D.Mills(APS)*
	Scientific output and performance metrics: *G.Long(APS)*
12:05 - 12:30	*Participative Management? The involvement of staff in management decisions at the ESRF:* H. Krech *(ESRF)*
12:30 - 14:00	Lunch

SPring-8 Organization



APS BL Performance goals for the future

- **Increase the output and impact of user science**
  - Expand the size and scientific scope of our user base
  - Advise and support general users
  - Enhance support to sectors
  - Increase the productivity of BES beamlines
  - Encourage and support development of specialized beamlines
  - Foster theory activities
- **Invest in the future**
  - Increase the number of graduate students and postdocs
- **Growing responsibility for BES sectors**
  - Stability of support
  - Optimization of dedicated beamlines

Three-Way Meeting

The Utilization of the unique properties of SR: the potential and limits

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14:00 - 17:30	X-ray Source *(one 30-minute talk and two 15-minute talks (or, alternatively, three 10-minute talks) from each lab.)*
	Cryogenic small-gap undulators: limits of current for storage ring operation; application: time-resolved experiment
	Machine control system:The TANGO control system - The MADOCA system-Feedback system
	Spring-8
14:00 - 14:30	*Overview of Operational Performance of SPring-8:* H. Ohkuma (Accelerator Group Leader)
	(Key words: top-up mode, low emittance, limits of current for storage ring operation)
14:30 - 14:45	*Cryogenic small-gap undulators:* T. Hara
	(Key words: high brilliance)
14:45 - 15:00	*The MADOCA control system:* R. Tanaka
	(Key words: machine control system)
15:00 - 15:30	Coffee Break
	APS
15:30 - 16:30	*Overview*
15:30-15:50	*Top-up experience at the APS:* R. Gerig
	(Key words: Reliability Enhancements and Top-up mode)
15:50-16:05	*Electron and x-ray beam stability:* G. Decker
16:05-16:20	*Small period SC undulator:* E. Moog
16:20-16:30	*ID radiation damage:* E.Gluskin
	ESRF
16:30 - 17:30	*Overview of Recent Developments:* P. Elleaume
	The Tango Control System: J.M. Chaize
	Status of small gap IDs: J. Chavanne
	Increasing the Current of the ESRF: J. Jacob
18:00 - 20:00	Banquet

Accelerator and IDs R&D - Summary

- **Top-up:** Spring-8 wants to achieve 0.1% current stability; APS stands on the same ground; ESRF claims that they operate top-up from the very beginning.
- Each facility continue to develop their own unique **control system**.
- **Beam stability:** different approaches to achieve the same goal.
- Small gap, small period ID: superconducting undulator

Three-Way Meeting

The Utilization of the unique properties of SR: the potential and limits

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10 November

9:00 - 12:30 Beam Line Activities *(one 30-minute talk and two 15-minute talks from each lab.)*
High heat load, beamline operations, automation of experiment (protein, powder….etc.); nanofocusing and nanotechniques; beamlines and instrumentation; imaging

SPring-8

9:00 - 9:30 *Overview of scientific activities in SPring-8:* H. Suematsu (Materials Science Division Leader)
(Key Word: nano materials science & technology)

9:30 - 9:45 *High Throughput Protein Diffractometer:* M. Yamamoto
(Key word : automation)

9:45 - 10:00 *Inelastic Scattering Experiment in SPring-8:* A. Baron
(Key word: high brilliance)

APS

10:00-10:30 *Scientific Highlights from the APS*: G. Long

10:30-10:40 *Source limits – High Heat Load/High Current Engineering*: P.Den Hartog

10:40-10:50 *Recent Advances in the APS Control System*: J. Carwardine

10:45-11:00 *Optimization of beam line operations*: M. Beno

11:00 - 11:30 Coffee Break

ESRF

11:30 - 12:00 *Nanoimaging projects at the ESRF:* P. Cloetens

12.00 - 12.15 *Inelastic x-ray scattering at the ESRF:* G. Monaco

12.15 - 12.30 *Protein crystallography and automation at the ESRF:* S. Larsen

12:30 - 14:00 Lunch

High Heat Load FE - Summary

- New front end component designs can handle much higher power than earlier generations.
- The demands keep increasing!
- Design criteria may be revised but more data is needed.
- A collaboration has been formed between ESRF and APS to perform analysis and measurements to better understand the fatigue failure limits.
- Our existing “Bag of Tricks” may be sufficient to increase the limits of existing front ends to meet the future high current requirements if the design criteria can be revised.

Three-Way Meeting

The Utilization of the unique properties of SR: the potential and limits

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14:00 - 15:00	Long-term Development Plans and Discussion (General Directors) *Relations between third generation and 3.5/4th generation x-ray facilities*
15:00 - 16:00	Panel Discussion *For an organic cooperation among source, beamline and end station section divisions.* Panelists: SPring-8: H. Tanaka ESRF: P. Elleaume & S. Larsen APS: D. Mills
16:00	Site tour of SPring-8
18:30	Farewell Party

8 November

1. Optics Workshop

Dr. Tetsuya Ishikawa (SPring-8) <ishikawa@sp8sun.spring8.or.jp>
Dr. Albert Macrander (APS) <atm@aps.anl.gov>
Dr. Christian Morawe (ESRF) <morawe@esrf.fr>

2. Detector Workshop

Dr. Naoto Yagi (SPring-8) <yagi@spring8.or.jp>
Dr.Heinz Graafsma (ESRF) <graafsma@esrf.fr>
Dr. Patricia Fernandez (APS) <fernandz@aps.anl.gov>

Three-Way Meeting Detector Workshop – Summary

The workshop, organized by N. Yagi (SPring-8), H. Graafsma (ESRF), and P. Fernandez (APS), featured eighteen talks on new developments, detector support, and requirements for future detectors.

ESRF:

- 2nd generation FReLoN 4-chip CCD detector is now ready for commercialization (direct sales or through licensing).
- Also described progress on Medipix-2 pixel array detector, amorphous silicon flat panel detectors, APDs, diamond BPMs, and beam imaging.

SPring-8:

- A. Baron talked on CdZnTe arrays for IXS, 4 to 8 element boards from Hamamatsu.
- Also talks about CMOS flat panel detectors, pixel detectors (collaboration with SLS), and position sensitive ion chambers (3μm sensitivity).

APS:

- Steve Ross (AOD) talked about low-noise electrometers (e.g. for BPMs), APDs, and CCD projects.
- Jin Wang (XFD) presented results obtained with a jitter-free streak camera.

The workshop concluded with a discussion on possible future collaborations among the three facilities, e.g. Si APD arrays, CdZnTe arrays, pixel array detectors, CCD technology, 2π fluorescence detectors.

Three-Way Meeting Optics Workshop – Summary

The workshop, organized by T.Ishikawa (SPring-8), C.Morawe (ESRF), and A.Macrander (APS), featured talks on new developments and requirements for x-ray optics.

- Main topics included metrology of mirrors and crystals and comparison of results from all three facilities.
- Some of future efforts would be in the area of development top quality KB mirrors.