APS/Users Monthly Operations Meeting

Rod Gerig for

G. Brian Stephenson and George Srajer

February 29, 2012

Agenda

- APS and APS-U Update – *R. Gerig*
- Update on the 2012 Users Meeting - Our User Science Shapes the Future - *Peter Eng*
- Report from the 3-Way Meeting, Data Management and Online Analysis - *John Maclean*

Update talk outline:

- Service Awards and Honors
- Budget outlook
- Upgrade developments

APS Staff Awards and Honors

- Lahsen Assoufid, Leader of the XSD Optics Group has been elected a Fellow of SPIE, and was also made a Fellow of the Optical Society.

APS Staff Awards and Honors

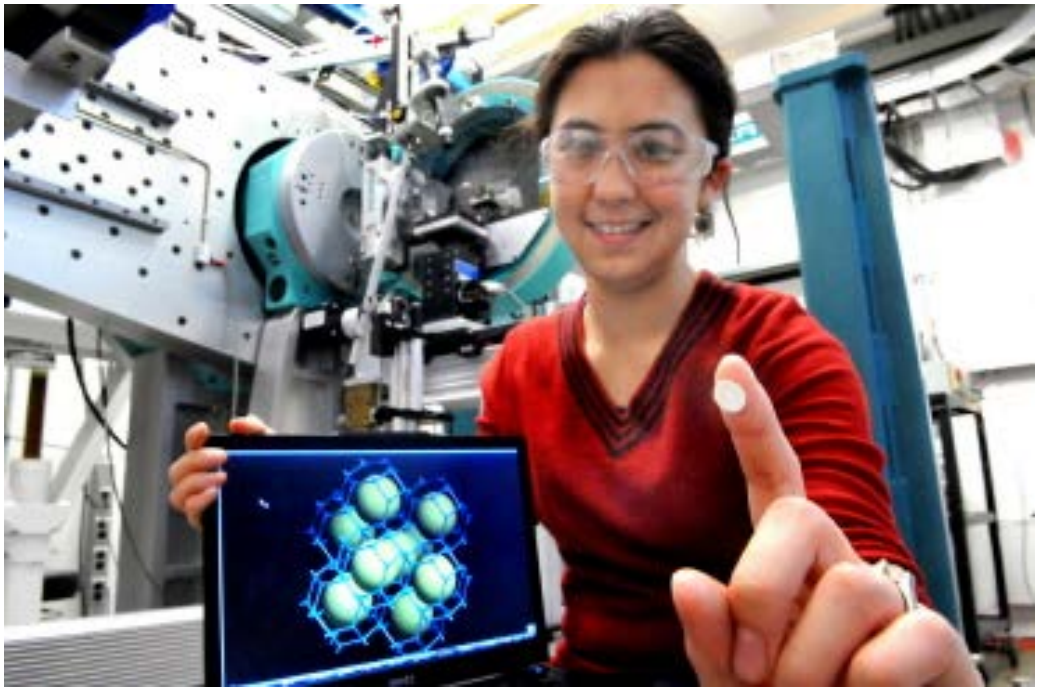
- Chris Jacobsen, Associate Division Director for Imaging and Microscopy XSD, has been elected to Fellowship in the American Physical Society.

APS Staff Awards and Honors

- Efim Gluskin, the Magnetic Devices Group Leader in the ASD, has been elected a Fellow of the American Association for the Advancement of Science.

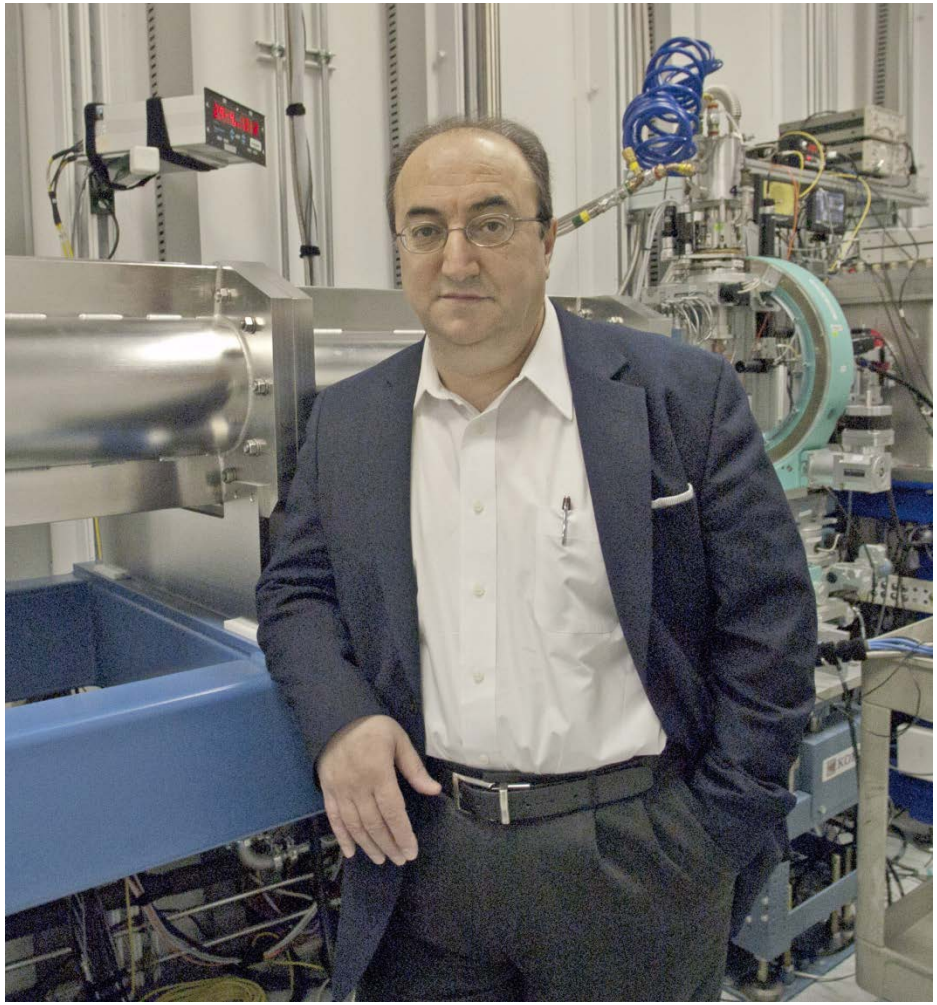
APS Staff Awards and Honors

- Karena Chapman of XSD won the 2011 Oxford Cryosystems Poster Prize for “11-ID-B, a Dedicated Instrument for X-ray Pair Distribution Function Measurements.”



APS Staff Awards and Honors

- Esen Ercan Alp, XSD Senior Physicist, has been elected to Vice-Chair and the 4-Year Chair Line term of the American Physical Society Forum on International Physics.



APS Staff Awards and Honors

- Rod Gerig, Deputy Associate Laboratory Director for Photon Sciences and Director of the Argonne Accelerator Institute, has been selected Chair of the Board of Governors of the U.S. Particle Accelerator School.

APS Staff Awards and Honors

- Brian Toby, Scientific Software Team Leader in the Theory and Software Group (XSD) has been named chair of the U.S. National Committee for Crystallography by the National Academy of Sciences for a three-year term.

APS Staff Awards and Honors

- XSD Director Linda Young has been elected Vice Chair of the Division of Atomic, Molecular, and Optical Physics of the American Physical Society.

APS Staff Awards and Honors

- Others missed?

Budget and Staffing – FY12

- Division budgets for FY12 have been established
  - Based on APS operations and Upgrade funding guidance provided by DOE in late December
  - APS Upgrade has its own separate funding channel
  - Effort budgets will be managed by divisions and groups
    - more local control, more local responsibility
- Coordinated operations and Upgrade staffing plan has been developed
  - Can proceed with hiring

Office of Science FY 2013 Budget Request to Congress

(B/A in thousands)

	FY 2011 Approp.	FY 2011 (pre-SBIR)	FY 2012 Approp.[a]	FY 2013 Request	FY 2013 vs. FY 2012	
Advanced Scientific Computing Research	410,317	421,997	440,868	455,593	+14,725	+3.3%
Basic Energy Sciences	1,638,511	1,678,195	1,688,093	1,799,592	+111,499	+6.6%
Biological and Environmental Research	595,246	611,823	609,557	625,347	+15,790	+2.6%
Fusion Energy Sciences	367,257	375,462	400,996	398,324	-2,672	-0.7%
High Energy Physics	775,578	795,420	790,860	776,521	-14,339	-1.8%
Nuclear Physics	527,684	540,114	547,387	526,938	-20,449	-3.7%
Workforce Development for Teachers and Scientists	22,600	22,600	18,500	14,500	-4,000	-21.6%
Science Laboratories Infrastructure	125,748	125,748	111,800	117,790	+5,990	+5.4%
Safeguards and Security	83,786	83,786	80,573	84,000	+3,427	+4.3%
Program Direction	202,520	202,520	185,000	202,551	+17,551	+9.5%
Small Business Innovation Research/ Technology Transfer (SC)	108,418	—	—	—	—	—
Subtotal, Science	4,857,665	4,857,665	4,873,634	5,001,156	+127,522	+2.6%
Small Business Innovation Research/ Technology Transfer (DOE)	54,618	—	—	—	—	—
Subtotal, Science	4,912,283	4,857,665	4,873,634	5,001,156	+127,522	+2.6%
Use of Prior Year Balances	-15,000	-15,000	—	-9,104	-9,104	—
Total, Science Appropriation	4,897,283	4,842,665	4,873,634	4,992,052	+118,418	+2.4%

[a] The FY 2012 appropriation is reduced by $15,366,000 for the Office of Science share of the DOE-wide $73,300,000 rescission for contractor pay freeze savings. The FY 2013 budget request reflects the FY 2013 impact of the contractor pay freeze.

Basic Energy Sciences

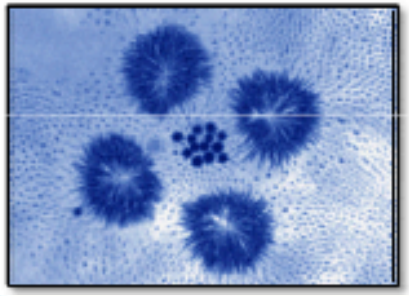
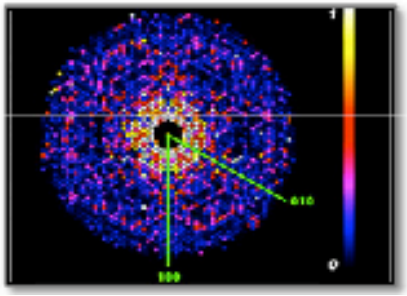
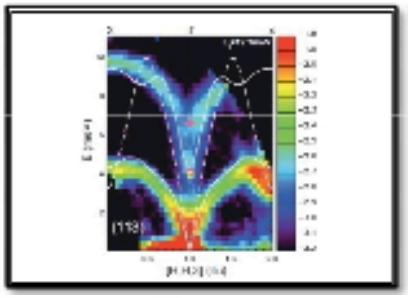
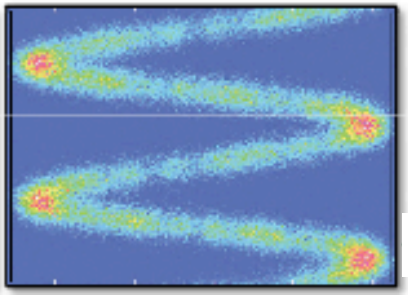
Understanding, predicting, and ultimately controlling matter and energy flow at the electronic, atomic, and molecular levels

The Scientific Challenges:

- Synthesize, atom by atom, new forms of matter with tailored properties, including nano-scale objects.
- Direct and control matter and energy flow in materials and chemical assemblies over multiple length and time scales.
- Explore materials functionalities and their connections to atomic, molecular, and electronic structures.
- Explore basic research to achieve transformational discoveries for energy technologies.

FY 2013 Highlights:

- Science for clean energy
  - Science-based chemical and materials discovery to enable manufacturing innovations
  - R&D for next-generation clean energy applications jointly funded with EERE
- Materials and chemistry by design: discovery grounded in theory and modeling
- National Synchrotron Light Source-II construction and early operations
- User facilities at near optimum operations; facility upgrades and enhancements
  - LCLS expansion (LCLS-II); NSLS-II EXperimental Tools (NEXT); APS Upgrade (APS-U)

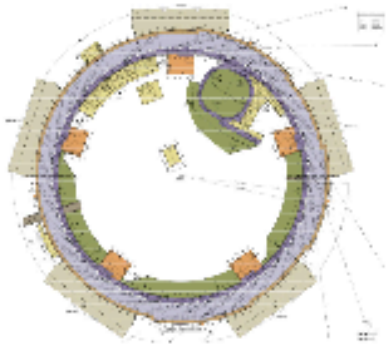
Maintaining World Leadership in Light Sources
Upgrades and Instrumentation

Linac Coherent Light Source-II (LCLS-II)

- LCLS-II will provide a second, independently controlled FEL to the facility
- Expanded x-ray energy range (250eV - 13keV), x-ray polarization control, control pulse length down to ~1 femtosecond
- New experimental hall with 4 experimental stations
- Cost Range: $350M - $500M (Line Item Construction)
- FY 2012 $30M, FY 2013 Request $64M for R&D, design, and construction

Advanced Photon Source Upgrade (APS-U)

- Temporal resolution to 1 picosecond, spatial resolution <1 nm above 25 keV
- Accelerator and x-ray source upgrades, new and upgraded beamlines, enabling technical capabilities
- Cost Range: $310M - $450M (Major Item of Equipment)
- FY 2012 $20M, FY 2013 Request $20M for R&D, design, and long lead procurement



NSLS-II Experiment Tools (NEXT)

- Enhance NSLS-II with 4 to 6 best-in-class beamlines chosen from peer reviewed proposals
- Beamlines will support 300-400 users per year
- Cost Range: $83M - $90M (Major Item of Equipment)
- FY 2012 $12M, FY 2013 Request $12M for R&D, design, long lead procurement, and construction

Budget and Staffing – FY13

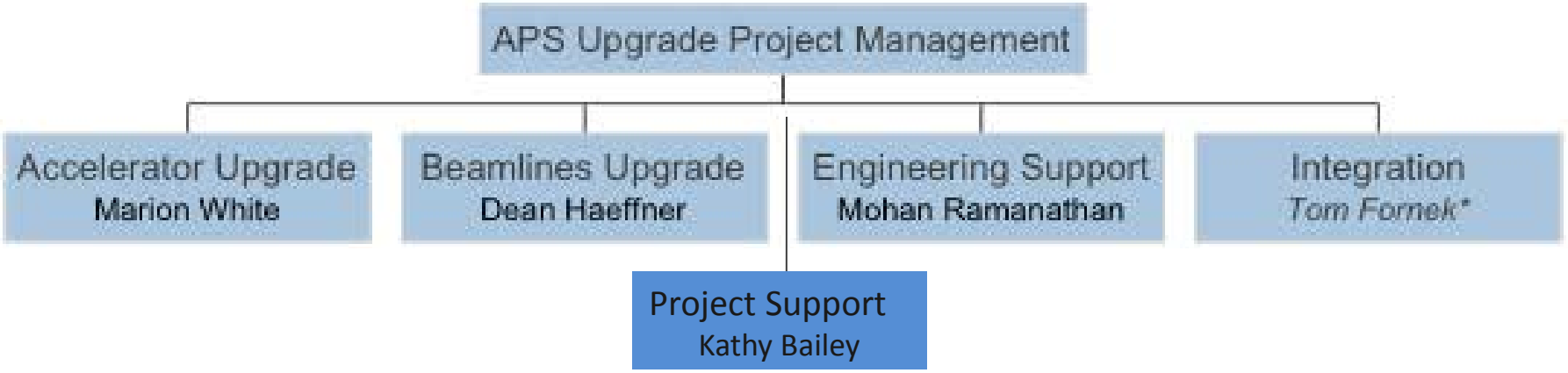
- President's budget for FY13 has been released
  - Reflects strong support for BES and facilities
  - DOE: up 3.2% from FY12 enacted
  - Office of Science: up 2.4% from FY12 enacted
  - Basic Energy Sciences: up 6.6% from FY12 enacted
  - Includes $134.8M for APS operations and $20M for APS-U
- We need to plan for long Continuing Resolution in FY13
  - Flat would be $123M for APS operations and $20M for APS-U

George Srajer – Project Director for APS-U

- Argonne National Laboratory Director Eric Isaacs has appointed George Srajer to the position of Project Director for the Advanced Photon Source Upgrade project, and Deputy Associate Laboratory Director of Facility Development for Photon Sciences.

APS Upgrade Project Structure

Basic Organizational Structure:



APS Upgrade Project Management

Project Director:	*George Srajer*
Project Manager:	Search in Progress
Project Advisor:	*Ed Temple*
ES&H:	*Tom Barkalow*
Finance:	*Connie Markiewicz*
Quality Assurance:	*Tom Barsz*

*Starting March 5

APS Upgrade Project Hiring Priorities

1. Project Manager: Identifying Potential Candidates
2. Deputy Associate Project Manager for Accelerator – Identifying Candidates

- Safety Representative

- QA Representative

- Financial Support

Vision for Moving Forward

Goal: Ready for CD-2 by October 2012

Path:

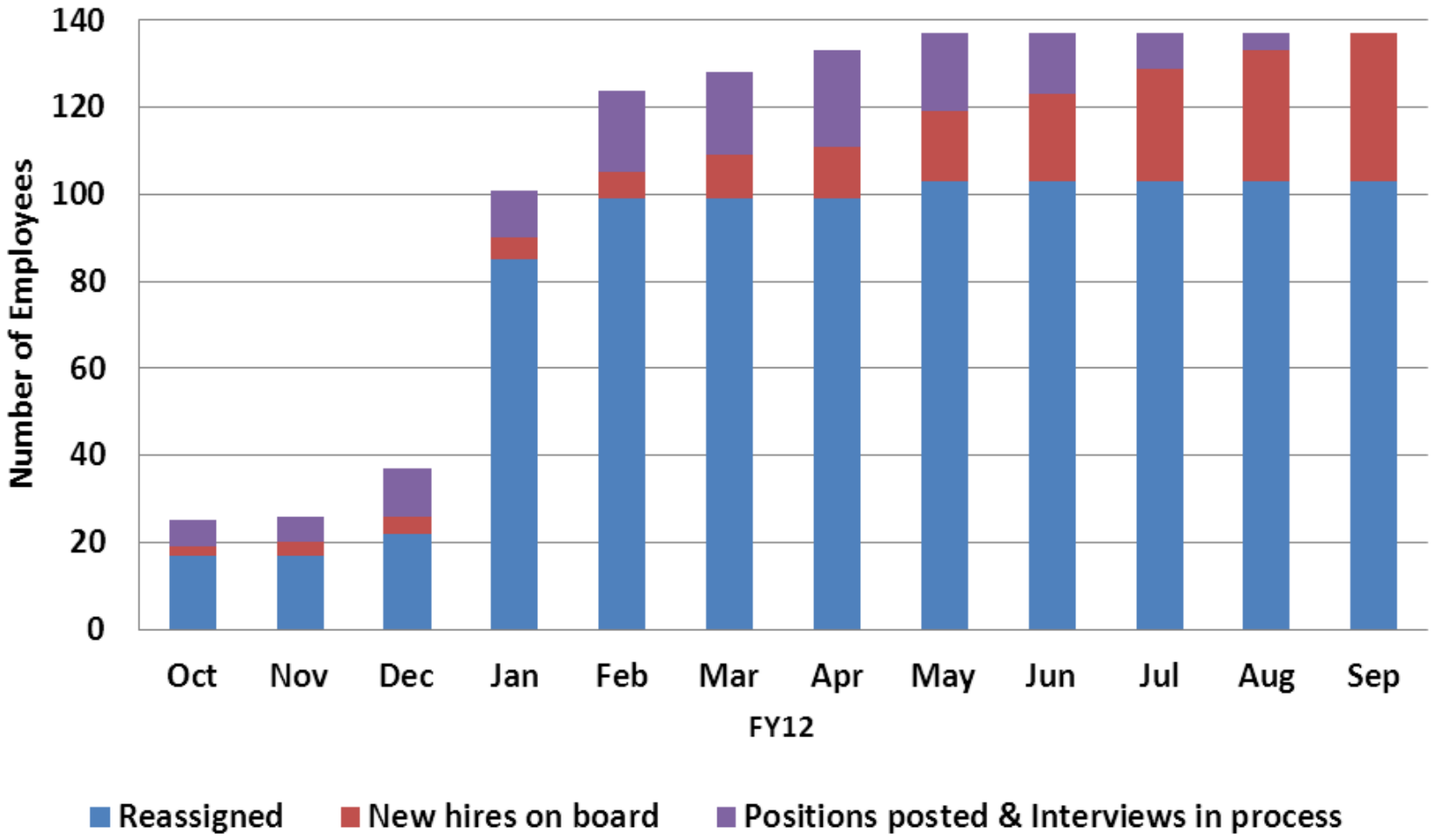
- Responsive to early guidance by DOE
  - Identifying opportunities for early success
- Documents preparation in full swing
  - Physics Requirements Documents (PRD)
  - Interface Control Documents (ICD)
  - Engineering Specification Documents (ESD)
  - Design to support the Preliminary Design Report (PDR)
  - Updated / Strengthened Basis of Estimate (BOE)

Vision for Moving Forward - Continued

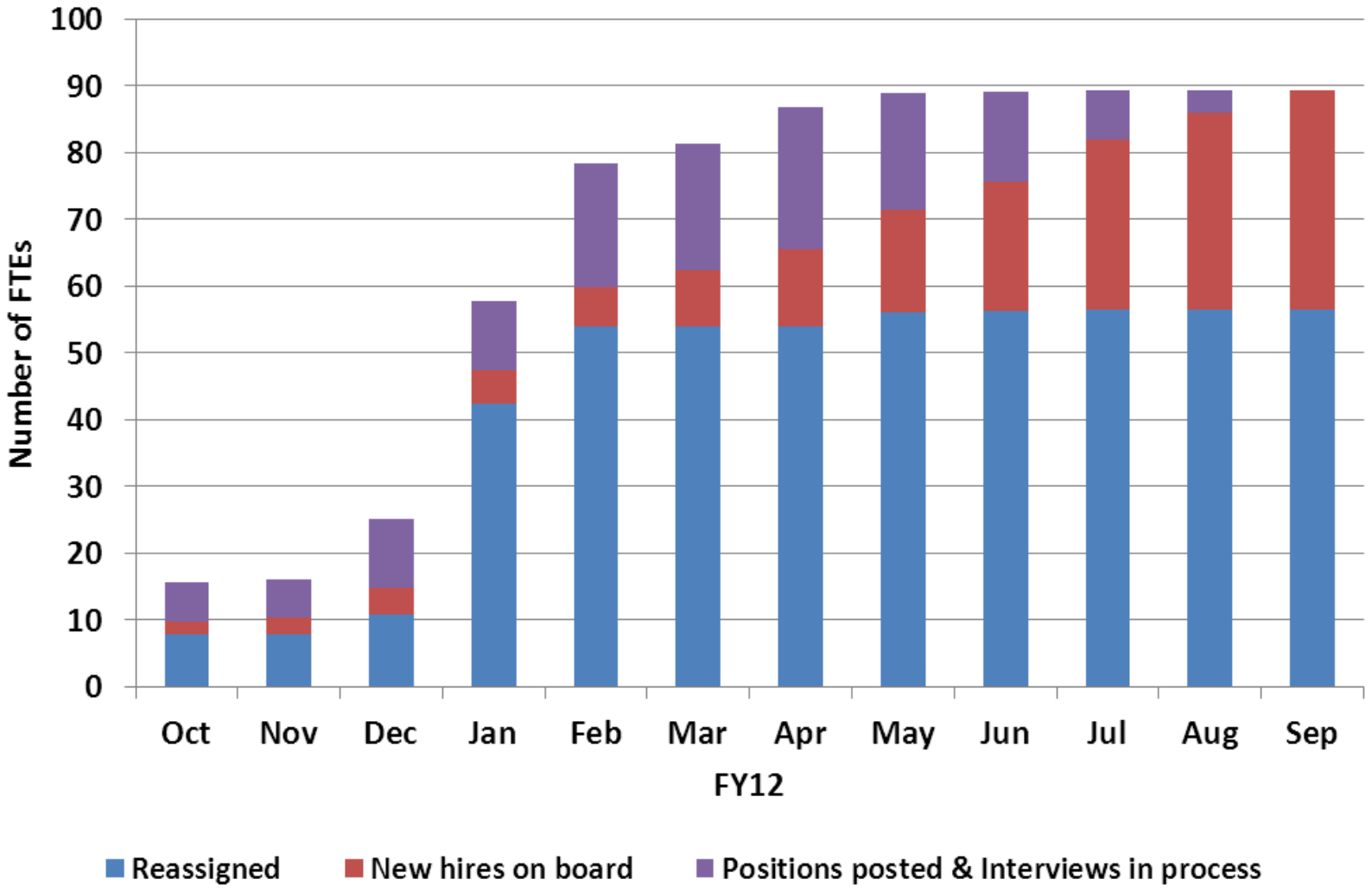
- Memorandum of Agreement with divisions
  - Provides framework for effort allocation
- Community Involvement
- Roadmap planning: Half a dozen scenarios identified
  - Plan to present to the community before the March 20-21, 2012 SAC meeting
- Resource-loading planning in progress
  - Staffing needs that fit budget scenarios completed

FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16	FY-17	FY-18	Total
$1M	$7.5M	$20M	$20M	$38M	$69.5M	$103M	$99M	$33M	$391M

APS Upgrade Headcount

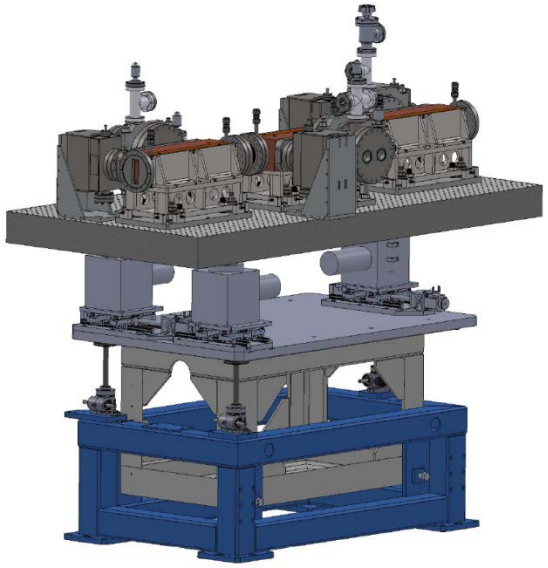


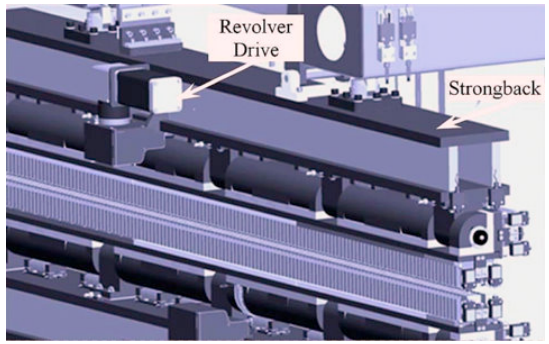
APS Upgrade FTEs

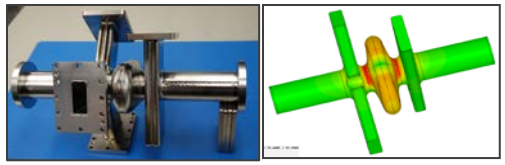


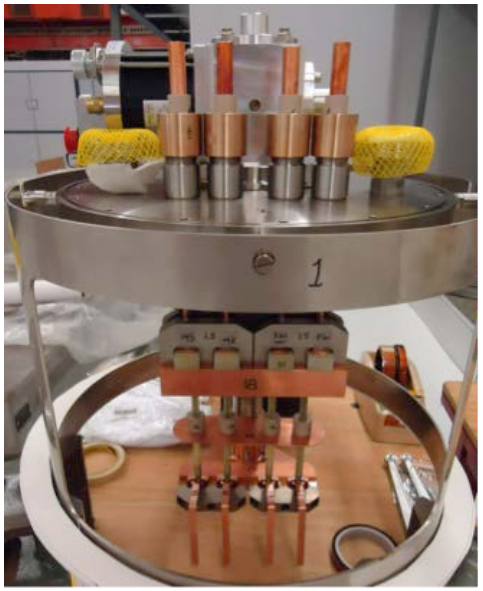
Vision for Moving Forward – Continue R&D Activities

- Beam Stability: Grid X-Ray Beam Position Monitor
- *Superconducting Undulator (SCU0)*
- Revolver Undulator
- Superconducting cavity for SPX









- Optics and Detectors
- High Heat Load Components

Community Involvement

- Stakeholders Committee created
  - Representatives from all User organizations, APS divisions and Argonne ALDs
  - First meeting was held February 27, 2012

APSUO Steering Committee	Peter Eng
Partner User Council Partner User Council Alter.	Mark Rivers Denis Keane
Life Sciences Council	Bob Fischetti
ANL/PSE ANL/PSE Alternate	Paul Fuoss David Tiede
ANL/EESA	Christopher Powell
ANL/CELS	Max Boyanov
APS Staff and Chair	Dennis Mills
APS Beamline Scientist	Jan Ilavsky
AES Division	Geoff Pile
APS Upgrade	Dean Haeffner

- X-Ray Interface Science at the APS: New Sector Development: Jan. 10 - 11

Summary and Conclusion

- Project Management Leadership
  - Strong team already in place, however needs to be completed
  - Search for the Project Manager vigorously pursued
- Roadmap scenarios development in progress
  - Presentations to the Stakeholders Committee, APS staff, PSAC and SAC planned
  - Important for defining the scope for CD-2 and early successes
- Memorandum of Agreement drafted
  - Important for resource allocation
- R&D activities aggressively pursued
  - Important for delivering enhanced capabilities and unique aspects of APS Upgrade

Next Milestone

Status review June 12-14, 2012

- Goal: Assess readiness for CD-2
- Members: Dan Lehman Team plus several experts
- Length: One-and-half day review with several breakout sessions