2019 PSC Priorities Meeting July 24, 2019

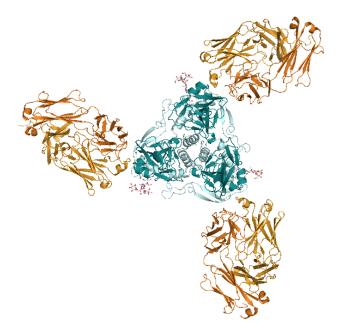






Agenda

- PSC Stephen Streiffer
- XSD Jonathan Lang
- AES Patric Den Hartog
- ASD John Byrd
- APS Upgrade Jim Kerby



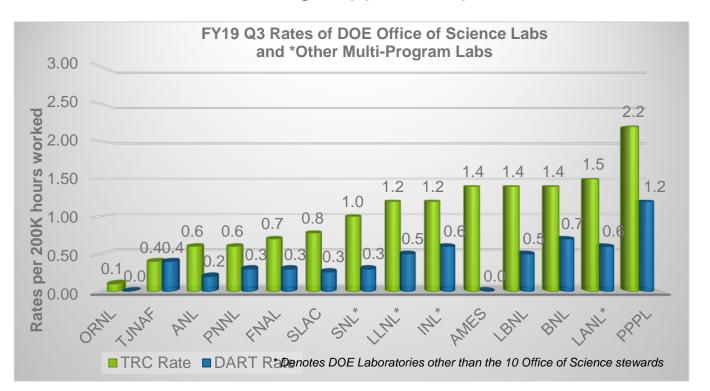
Three antigen-binding fragments of ADI-15946 (orange) are shown bound to the surface glycoprotein of Ebola virus (teal).

B.R. West, C.L. Moyer, L.B. King, M.L. Fusco, J.C. Milligan, S. Hui, E. Ollmann Saphire, "Structural Basis of Pan-Ebolavirus Neutralization by a Human Antibody against a Conserved, Yet Cryptic Epitope," mBio 9(5), e01674-18 (September/October 2018). DOI: 10.1128/mBio.01674-18.



Safety

If something happens, report it





Our Impact Argonne Framework and Core Values Guide Our Strategy





Our Major Initiatives Will Help Shape the Future

HARD X-RAY SCIENCES

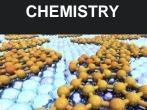
ADVANCED COMPUTING

Continuing initiatives











Emerging initiatives



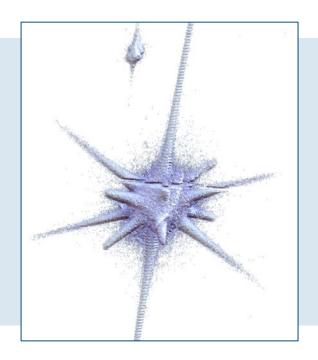


Hard X-ray Sciences Initiative

OUTCOME Multiscale, three-dimensional exploration of complex materials and chemical systems in unprecedented detail

STRATEGY ELEMENTS

- New experimental techniques
- Novel optics and detectors
- Analysis-driven, real-time experimental control
- APS-U project on time and within budget





The Photon Sciences Directorate: Getting to APS 2025

Operate and develop hard x-ray user facilities and advance the forefront of x-ray science, transforming exploration of energy, biological and other functional materials, chemistries and systems, to overcome global challenges to sustainable energy, health, and national security.



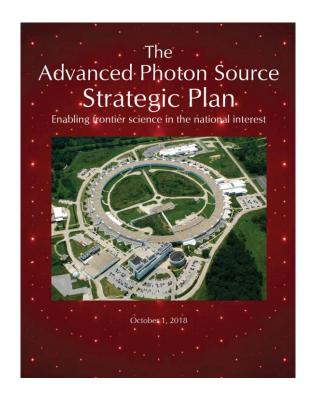
Our Goals:

- OPERATE, maintain, and improve the current APS (aligned with APS-U)
- **Upgrade** to maintain world leadership the APS-U Project
- **ADVANCE** hard x-ray techniques to exploit APS-U source characteristics
- Leverage Computing@Argonne to meet data science challenges
- PARTNER across Argonne to advance programs in basic science, energy and national security
- Research concepts for future sources and accelerator technologies



APS Operations and APS-U are Aligned

- Project and Ops meet regularly to coordinate resources
 - MOU between APS and APS-U, defining interfaces
 - Effort Request Agreements (ERAs) between APS-U and divisions
 - Integrated Staffing Plan
- APS Ops and APS-U have agreed on a beamline "roadmap" with program siting changes and a sequence for beamline work
- Ops is responsible for handing over facility to APS-U in the anticipated state, and ensuring that reused technical systems that do not require improvements will support APS 2025
- Ops supports data sciences, instrument/technique development to capitalize on APS-U investment
- APS Infrastructure Master Plan developed, owned by Infrastructure Services





Interface Portfolio

Gap analysis

Projects list and detailed plans

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							6393 Bldg 4.13 High-Power Linac Test Stand			
						OperCont		effort).		
Contara (Mandata) son Tractors				Dam Hartur	Som	64 F≅ (pum)				_
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1.0/Conference Wireless How who	Consider		THE IS COUNTY I FOR SHITTERS IS COMING THE HILLING PSC IPPGRACE.	Showtz	Transfer			original driver amplifiers use obsolete components that are very difficult to obtain. Once our supply of spare		
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Bendara Oracia SCR mani ala	(MARCH 41252)		Charlete substant - will become assess table	Resourches A	Militario Con					-
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in the state of th			ted to achieve cost reduction. Preside habitus.	Remarks. A	Militario-Ope			Prevaire L6 for Digital Low Level testing: Build a new Power Monitor chassis & install in linac sallery Rack #		- 1
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to stores intelligence on dillata Worsh mea			Replace or miles a 160	Researches, A	Military Chr.		Second Vendor for linac klystrons	Existing Thales klystrons are not guaranteed to be available in the future. We could purch ase a klystron from a	Alexander Cours	
rigated Corporat Mangement System (CCC)				Teeller	Miligate-PP91			second vendor with slightly higher output power & still be able to use our existing modulators with		
Contentor Window Rateuric	DMPDH49180.		P115	Sala arratez	Market of the			modifications.		
lephon (IGSIS That og Generators			Incressi devettes	Armeld	Military Chr.	SIM 0.25	Install 50MW second vendor linac klystron in L5	Example-The Toshiba 50MW klystron tested in Bld 413 could be installed into L5. The L5 PRII capacitors and SS	414-6	
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AMI Crain Person Supplies AMI crains with color related recover supplies.			to recal devettes	Annali Annali	Miligra-Ops Militaria-Ops			switch would need to be modified for higher voltage like the building 413 test stand. A new RF system cannot be	.	
MAIL craftes with reads extend powers supplies. Instancements: In the II care as if PAII			in cruerus - Valens in house, Offert by MONATO install	Marrison	Militario Con			installed into Operations without spare components available. The RF Group cannot be in a position where a		
EQUIPMENT OF THE CONTRACT OF T	COLUMN STATE OF STATE		in programs - tolera in him so, criest by Malarto install	Marrian	Militario (in		eneric Install 50MW second vendor linac klystron			B
COLIN Druggin St. Pages	CHARLES SHOW THE			Marrison	Military Com		eneric install Solvivy second vendor linac klystron	Buy all necessary parts required (klystron, tank, etc.), test in building 413 first. Buy all spares required for	Alexander Cours	
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Sente II Water Voire, Replacement	(BARCH 687 577		Not in ad ad - H and final sto-replace valves or countly leaking	Marrison	Militario Ope	110	Install new accelerating structures in one station.	id - 3 meter accelerating structures - 5160 g each	rerry armon	
is down that PCS as Widon Section.	COMPANY MAY 1932		Ret I maded	Marriam	Miligate-Ops					
Busines Beamilian & Badens Stocaes Chateas	PRINTERS AND		P715/2 It no Chemical. But missing product with the same name	Salarante.	Militate-Ous		Linac HVPS High Regulation Upgrade	A system is available where we could use our existing EMI HVPS along with an additional power supply and	Alexander Cours	R
Dray Topad Herary Copus By In crease	INDUNES GALLETY		PTIS	Schools.	Migray Ope	135 5.2	cinac nvr a rigii kegulation opgrade		Alexander Cours	. "
Emertment Flour A COM Witness Returnsk	CHAPGE #12 125		1720	Salamanto.	Military Con.			circuitry to achieve a stability improvement of ~10X. The existing EMI supply provides most of the charging and		/ /
Upgrad a Zeray Blada Chassis Model as	COLUMN COS 4607 5077			Salaranto.	Miligate-Ope	•		the second supply regulates. Example - TDK-Lambda ALE 30 3-40KV-POS-1209.		/ /
alis oppoie				Markentch	Miligate-Ope	•	65MM Klystron station	CPI 65MW Klystron, includes electron gun tank and electromagnet -\$541K, Scandillova Klystron Modulator	Alexander Cours	
22 SEG HT-HECOM	PRODUCTS 254			4-	Militario Cas	0.3	ecoming mysm on aremon		meranuel cours	
								for 65 MW tube - \$618K. Spareklystron system required before installation - \$541K. Many other spare		
Mat Laboratory Corologuesert			for its printing*7 fik	the street	Militario-Ope			modulator parts would be needed before installing into Operations (not listed here)		
hale class of promp and flow hal or of wite atten			Water system is should referation (bitsy be combined with \$152.)		Militario-Ope	36	Install Harmonic Par 80W for APS-II	Effort Required Bligh Priority) to commissioning APSU-provided 8xW amp to full RF power when it arrives, test	Drawid Mileson	
City Sample Systems Combinated				Om Harting	- Anna - Che	-	and the second of the second o		Danie Ser	
constituted to Sample Chamber	I		1	Dan Harting	Miligate-Ope	B		harmonic spare RF Switch/Circulator to full RF power 2 8kW. Design Review required prior to Installation of a		- 1
lagia Sign on	DIMPORIO (CO		1	Schools.	Miligate-Ops	-		new 10KW transmission line and installation of high power tested spare Circulator / RF Switch into Operations.	. [- 1
and Scale Water lat Cetting		1	15 mm	to showing to showing	Miligala-Ope		31395 - 352MHz High-Power Solid-State RF Amplifier	This WIP RF group project is being entered into ServiceNow for effort tracking across multiple projects.	Douglas Horan	
ago Recount FIEM Prints coming Commissional			**55## ***#	in description	Miligato-Ope Miligato-Ope	15	52555-552Witternight-Fower Solid-State Kr Amplifier		Douglas Horali	41
e mani ng Commissy namet Problem e 100.07°			P.=		Militario (pr.			L1, L2 & L3 are now complete. L4, L5 & L6 will be completed, one per each shut down going forward (~ 1 year).		411
Burger the estawak councily frefrontsik data rately	+		Plat amough posts feel or spoul tok as also MEA as abound	Showing	Store	34.000 4		Three more 600 W amplifiers need to be purchased, plus one spare (\$22K each).		4 II
			Cost program species sparses	Showt 2	Ministra	;	Oil Purifier	Baron-USA system to process new and used	Alexander Cours	

- System-by-system analysis identified ~120 projects that are Ops responsibilities
- Assemble projects in 3 buckets
 - Operations: Work necessary to ensure uninterrupted beam delivery to APS users
 - APS Upgrade Readiness: Projects to support successful interface with the APS-U
 - Full Optimization: Projects that support PSC long-term strategy



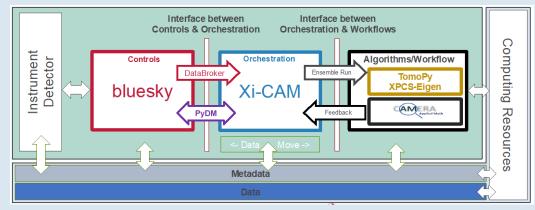
Community Engagement on APS-U Science

- Science engagement is an on-going process
 - Aug. 20 21, 2018: Biological Science Opportunities Provided by the APS Upgrade, ANL {MX focus}
 - Aug. 28 29, 2018: Opportunities in Biological and Environmental Research Uniquely Enabled by the APS Upgrade {non-MX, BER focus}
 - Sep. 25 26, 2018: Condensed Matter Physics, X-Ray Scattering and X-Ray Spectroscopy at the APS Upgrade, ANL
 - Sep. 27 28, 2018: Discovery, Synthesis, and Development of Emerging Materials and the Role of the APS Upgrade, ANL
 - Workshops being planned for catalysis and timeresolved chemistry in October 2019



The Year Ahead

- CD-3 approval and continued success in APS-U project execution
- Experimental techniques and data analysis workflows for APS-U feature beamlines
- Begin work on Interface Portfolio Projects
- User and staff preparation for dark time and start-up
- Vision for biological and environmental research
- Next-generation light source concepts



Proposed project to leverage capabilities across light-source complex to develop workflows to collect and analyze data



PACESETTERS

- Timothy Jonasson, Terry Smith (ASD/RF), and Soonhong Lee (AES/MED)
 - Pacesetter Award for an outstanding effort to timely and safely install a Linac SLAC Linac Energy Doubler (SLED) into the L6 Test Stand for High Power RF Tuning / Conditioning and installation into L5 to allow return to full energy in support of APS Operations and the Advanced Photon Source Upgrade (APS-U).

- Kelly Cunningham (PSC/AES)
 - Pacesetter Award for extraordinary effort in a variety of complex tasks with the goal of upgrading the APS websites. Kelly single-handedly managed and implemented ontime migration of the entire website to the cloud, including interfacing with the cloud-hosting vendor; moving the entire APS website to the new Drupal 8 content management system; and implementing a new, much improved Coveo search tool.





25+ YEARS SERVICE AWARDS

Congratulations to the following individuals for 25+ years of dedicated service to Argonne National Laboratory (second quarter 2019):

25 years

Linda DeVito

Sharon Farrell

50 years

Diane Kurtz

30 years

Terry Smith

David Jefferson

55 years

Cedric Putnam

Argonne 🗸



35 years

Timothy Hentsch

Dr. Raj Rajashankar, NE-CAT Associate Director

- Our friend Dr. Kanagalaghatta R. Rajashankar of Cornell Univ., long-time Associate Director of the Northeastern Collaborative Access Team (NE-CAT) at Sector 24 passed away on May 22nd, 2019.
- He is survived by his wife of 25 years, Suma, and two daughters, Medha and Manasvi.
- Raj was a valued and admired member of the APS community, and we offer our heartfelt condolences to Raj's family and colleagues.



Dr. Kanagalaghatta R. Rajashankar





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