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Short Bio

Uwe Bergmann got his PhD in Physics from Stony Brook University and is the Martin L. Perl Professor in Ultrafast X-ray Science in the Department of Physics at the University of Wisconsin-Madison. His research activities focus on the development and application of novel synchrotron and X-ray laser techniques. His scientific interests include studies of the structure of water and aqueous solution, active centers in metalloproteins in particular the photosynthetic splitting of water, hydrocarbons and fossil fuels, functional 2D materials, and imaging of ancient documents and fossils. Bergmann has done his graduate research at the National Synchrotron Light Source and since worked at the European Synchrotron Radiation Facility, the Lawrence Berkeley National Laboratory, the Stanford Synchrotron Radiation Lightsource, the Linac Coherent Light Source, and at the Stanford PULSE Institute at SLAC National Accelerator Laboratory.

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Education

1994:	Ph.D.	Physics	State University of New York at Stony Brook, NY
1990:	'Diplom'	Physics	University of Hamburg, Germany
1986	'Pre-Diplom'	Physics	Karlsruhe Institute of Technology (KIT), Germany

Professional Experience

2022-	Affiliate Faculty, Department of Chemistry, University of Wisconsin-Madison
2021-	Visiting Professor, SLAC National Accelerator Laboratory, Stanford, CA
2021-	Affiliate Faculty, Department of Materials Science and Engineering, University of Wisconsin-Madison, Madison, WI
2020-	Professor, Department of Physics, University of Wisconsin-Madison, Madison, WI
2016-2017	Visiting Professor, European Research Platform on Ancient Materials (IPANEMA), Foundation of Heritage Science, FSP, France
2016-2020	Associate Director, DOE Center 'Materials Genome Innovation for Computational Software'
2015-2020	Principal Investigator, Stanford PULSE Institute, Stanford, CA
2015-2020	Distinguished Staff Scientist, SLAC, Stanford, CA
2014-	Guest Scientist, Molecular Biophysics & Integrated Bio Division, LBNL, Berkeley, CA
2013-2014	Director (Interim), Linac Coherent Light Source (LCLS), SLAC, Stanford, CA
2013-2014	Stanford Leadership Academy, Class of 2014
2010-2012	Consulting with Kirkland & Ellis LLP, New York, NY
2010-2011	Leadership@Stanford, Class of 2011
2009-2013	Deputy Director, Linac Coherent Light Source (LCLS), SLAC, Stanford, CA
2009	Head of Chemical & Materials Science & User Support Department, SSRL, SLAC, Stanford, CA
2009-2012	Member of the California Executive Committee of the American Physical Society
2007-2015	Senior Staff Scientist, SLAC, Stanford, CA
2003-2007	Staff Scientist, Stanford Synchrotron Radiation Lightsource (SSRL), SLAC, Stanford, CA
2001-2003	Chair, Stanford Synchrotron Radiation Laboratory Users' Organization Executive Committee
2000-2003	Assistant Researcher, Department of Applied Science, University of California, Davis
1999-2003	Scientist, Lawrence Berkeley National Laboratory, Berkeley, CA
1996-1999	Postdoctoral Fellow, Lawrence Berkeley National Laboratory, Berkeley, CA
1994-1996	Postdoc, European Synchrotron Radiation Facility in Grenoble, France

Research Interests
Development and application of novel synchrotron, X-ray free electron laser and ultrafast electron techniques including:

- X-ray emission spectroscopy
- Resonant and non-resonant inelastic X-ray scattering
- X-ray Raman scattering
- X-ray fluorescence imaging
- Combined X-ray emission and diffraction
- Stimulated X-ray emission spectroscopy
- Nuclear resonant scattering
- Ultrafast electron diffraction

Applications of X-ray spectroscopy and scattering to:
- Metalloproteins in bio-catalysis
- 3d transition metal compounds
- Water and aqueous solutions
- Hydrocarbons and fossil fuels
- 2d layered materials

Applications for X-ray fluorescence imaging to:
- Ancient parchment writings including the *Archimedes Palimpsest*
- Medical studies of brain tissue
- Fossils including the *Archaeopteryx* and *Confuciusornis Sanctus*

Application of ultrafast electron diffraction to:
- 2d layered and functional materials

Synergistic Activities, Awards and Honors

Member User Executive Committee of LCLS, 2022 –
Proposal Review Panel, Methods &Instrumentation Chair at LCLS, X-ray free electron laser facility, USA, 2021 –
Proposal Review Panel member at SACLA X-ray free electron laser facility, Japan, 2021 –
Proposal Review Panel member at Cornell High Energy Synchrotron Source, 2019 –
Moossa J. Arman Award for Innovation in Physics, UCLA College of Physics & Astronomy, April 16, 2018
Member of the California Executive Committee of the American Physical Society, 2009 – 2012
Proposal Review Panel member at National Synchrotron Light Source, 2005 – 2007
SLAC Employee Recognition Award, 2004
Chair/Member Stanford Synchrotron Radiation Lightsource Users' Organization Executive Committee, 2001-2003
Co-Founding of the SLAC Public Lecture Series, see http://www2.slac.stanford.edu/lectures/
Co-Founding of Berkeley Spectroscopy Club, a lecture series that ran for two years until my departure from LBNL, see http://spectroscopy.lbl.gov/

Advisors

Postdoctoral	Francesco Sette, European Synchrotron Radiation Facility
	Stephen P. Cramer, UC Davis and Lawrence Berkeley National Laboratory
Ph.D.	Peter Stephens, Stony Brook University, Jerry Hastings, NSLS
Diplom	Erich Gerdau, Hamburg University

Students Advised at SLAC
Undergraduate students (SULI and LCLS programs): Kevin Reynolds, Isabella Griffin, Manisha Turner, Niclas Zeller, Luis Matheis, José Enrique Corado, Diego Arceo-Pegrino, Julieth Otero Rodriguez
High school students: Jessica Lee, Bryce Cronkite-Ratcliff,
Graduate Intern: Katalina Kimball-Linares

UW-Madison Graduate Students
Zain Abhari (2021 –
Roberta Candela (2021 –
Minhal Gardezi (2022 –
Sophia Vogelsang (2022 –
Caleb Robinson (2023 –

UW-Madison Undergraduate Student
(2021-2023) Noah Welke
(2021-22) Nikhilesh Venkatasubramanian
(2021) Maxwell Hanson,
(2022-) Jake Murawski
(2022-) Muneeza Munawar

Stanford Undergraduate Students Advised
(2012/13) Hashim Ali AlAwami, Asli Kimya, Ines A Lizaur, Michael P McKenna
(2011/12) Charles C Cox, Darren Hau, Michael A Lublin, Delaney M Sztraicher, Justine Y Zhang

Mentees
(2017/18) Miriam Diamond, Postdoc, SLAC Mentorship program

Postdocs and Research Associates Advised
Erzsi Szilágyi (2023 –), supervision shared with Junko Yano, LBNL
Thomas Linker (2023 –
Rafaella Gergiou (2023 –
Ryan Ash (2021- 2023)
Andrew Attar (2018-2020), supervision shared with Mike Minitti, SLAC
Alexander Britz (2018-2020), supervision shared with Sébastien Boutet, SLAC
Yu Zhang (2017-2019)
Nicholas Edwards (2016-2017), supervision with Sam Webb, SLAC and Roy Wogelius, U Manchester
Thomas Fransson (2016-2017), supervision shared with Junko Yano, LBNL
Ming-Fu Lin (2016-2018), supervision shared with David Fritz, SLAC
Clemens Weninger (2016-2017), supervision shared with David Fritz, SLAC
Thomas Kroll (2013-2015), supervision shared with Junko Yano, LBNL
Jan Florian Kern (2010-2012), supervision shared with Vittal Yachandra, LBNL
Roberto Alonso-Mori (2010-2012)
Dimosthenis Sokaras (2010-2013)
Xuena Zhang (2009-2010)

List of Publications (November 2023)

231. Bhowmick, A; Simon, PS; Bogacz, I; Hussein, R; Zhang, M; Makita, H; Ibrahim, M; Chatterjee, R; Doyle, MD; Cheah, MH; Chernev, P; Fuller, FD; Fransson, T; Alonso-Mori, R; Brewster, AS; Sauter, NK; Bergmann, U; Dobbek, H; Zouni, A; Messinger, J; Kern, J; Yachandra, VK; Yano, J; **Going around the Kok cycle of the water oxidation reaction with femtosecond X-ray crystallography**, *IUCrJ*, **10**, 642-655 (2023) ISSN: 2052-2525, https://doi.org/10.1107/S2052252523008928

230. Welke, N; Majernik, N; Ash, R; Moro, A; Agustsson, R; Manwani, P; Li, K; Sakdinawat, A; Aquila, A; Benediktovitch, A; Halavanau, A; Rosenzweig, J; Bergmann, U; C Pellegrini, C; **Development of spinning-disk solid sample delivery system for high-repetition rate x-ray free electron laser experiments**, *Rev Sci Instrum* **94**, 103005 (2023) https://doi.org/10.1063/5.0168125

229. Ash, R; Abhari, Z; Candela, R; Welke, N; Murawski, J; Gardezi, SM; Venkatasubramanian, N; Munawar, M; Siewert; F; Sokolov, A; LaDuca, Z; Kawasaki, J; Bergmann, U; **X-FAST: A versatile, high-throughput, and**

user-friendly XUV femtosecond absorption spectroscopy tabletop instrument, *Rev Sci Instrum* **94**, 073004 (2023) https://doi.org/10.1063/5.0146137

228. Weakly, RB; Liekhus-Schmaltz, CE; Poulter, BI; Biasin, E; Alonso-Mori, R; Aquila, A; Boutet, S; Fuller, FD; Ho, PJ; Kroll, T; Loe, CM; Lutman, A; Zhu, D; Bergmann, U; Schoenlein, RW; Govind, N; Khalil, M; **Revealing core-valence interactions in solution with femtosecond X-ray pump X-ray probe spectroscopy** *Nature Communications* **14**, 3384 (2023) https://doi.org/10.1038/s41467-023-39165-2

227. Wright, JC; Kohler, DD; U Bergmann, U; **X-ray/Extreme Ultraviolet Floquet State Multidimensional Spectroscopy, an Analogue of Multiple Quantum Nuclear Magnetic Resonance**, *The Journal of Physical Chemistry Letters* **14**, 4908-4913 (2023) https://doi.org/10.1021/acs.jpclett.3c00778

226. Bhowmick, A; Hussein, R; Bogacz, I; Simon, PS; Ibrahim, M; Chatterjee, R; Doyle, MD; Cheah, MH; Fransson, T; Chernev, P; Kim, I-S; Makita, H; Dasgupta, M; Kaminsky, CJ; Zhang, M; Gätcke, J; Haupt, S; Nangca, II; Keable, SM; Aydin, AO; Tono, K; Owada, S; Gee, LB; Fuller, FD; Batyuk, A; Alonso-Mori, R; Holton, JM; Paley, DW; Moriarty, NW; Mamedov, F; Adams, PD; Brewster, AS; Dobbek, H; Sauter, NK; Bergmann, U; Zouni, A; Messinger, J; Kern, J; Yano, J; Yachandra, VK; **Structural evidence for intermediates during O2 formation in photosystem II**, *Nature* **617**, 629–636 (2023) https://doi.org/10.1038/s41586-023-06038-z

225. Doyle, MD; Halavanau, A; Zhang, Y; Michine, Y; Everts, J; Fuller, F; Alonso-Mori, R; Yabashi, M; Inoue, I; Osaka, T; Yamada, J; Inubushi, Y; Hara, T; Kern, J; Yano, J; Yachandra, VK; Rohringer, N; Yoneda, H; Kroll, T; Pellegrini, C; Bergmann, U; **Seeded stimulated X-ray emission at 5.9 keV**, *Optica* **10**, 513-519 (2023) https://doi.org/10.1364/OPTICA.485989

224. Bogacz, I; Makita, H; Simon, PS; Zhang, M; Doyle, MD; Chatterjee, R; Fransson, T; Weninger, C; Fuller, FD; Gee, LL; Sato, T; Seaberg, M; Alonso-Mori, R; Bergmann, U; Yachandra, VK; Kern, J; Yano, J; **Room temperature X-ray absorption spectroscopy of metalloenzymes with drop-on-demand sample delivery at XFELs**, *Pure and Applied Chemistry* (2023) https://doi.org/10.1515/pac-2023-0213

223. Zhang, H; Li, W; Essman, J; Quarti, C; Metcalf, I; Chiang, W-Y; Sidhik, S; Hou, J; Fehr, A; Attar, A; Lin, M-F; Britz, A; Shen, X; Link, S; Wang, X; Bergmann, U; Kanatzidis, MG; Katan, C; Even, J; Blancon, J-C; Mohite, AD; **Ultrafast relaxation of lattice distortion in two-dimensional perovskites**, *Nature Physics* **19**, 545–550 (2023) https://doi.org/10.1038/s41567-022-01903-6

222. Simon, PS; Makita, H; Bogacz, I; Fuller, FD; Bhowmick, A; Hussein, R; Ibrahim, M; Zhang, M; Chatterjee, R; Cheah, MH; Chernev, P; Doyle, M; Brewster, AS; Alonso-Mori, R; Sauter, NK; Bergmann, U; Dobbek, H; Zouni, A; Messinger, J; Kern, J; Yachandra, VK; Yano, J; **Capturing the sequence of events during the water oxidation reaction in photosynthesis using XFELs**, *FEBS Letters* **597**, 30-37 (2023) https://doi.org/10.1002/1873-3468.14527

221. Vester, P; Kubicek, K; Assefa, TA; Biasin, E; Christensen, M; Dohn, AO; van Driel, TB; Galler, A; Gawelda, W; Harlang, TC; Henriksen, NE; Kjaer, KS; Kuhlmann, TS; Németh, Z, Nurekeyev, Z; Pápai, M; Vankó, G; Yavas, H; Bregenholt Zederkof, D; Bergmann, U; Nielsen, MM; Møller, KB; Haldrup, K; Bressler, C; **Tracking structural solvent reorganization and recombination dynamics following e− photoabstraction from aqueous I− with femtosecond X-ray spectroscopy and scattering**, *J. Chem. Phys*. **157**, 224201 (2022) https://doi.org/10.1063/5.0107224

220. Edwards, NP; Bargar, JR; van Campen, D; van Veelen, A; Sokaras, D; Bergmann, U; Webb, SM; **A new μ-High Energy Resolution Fluorescence Detection microprobe imaging spectrometer at the Stanford Synchrotron Radiation Lightsource beamline 6-2**, *Review of Scientific Instruments* **93**, 083101 (2022) https://doi.org/10.1063/5.0095229

219. Georgiou, R; J Sahle, CJ; Sokaras, D; Bernard, S; Bergmann, U; Rueff, J-P; Bertrand, L; **X-ray Raman Scattering: A Hard X-ray Probe of Complex Organic Systems**, *Chemical Reviews* **122**, 12977 (2022) https://doi.org/10.1021/acs.chemrev.1c00953

218. Georgiou, R; Popelka-Filcoff, RS; Sokaras, D; Beltran, V; Bonaduce, I; Spangler, J; Cohen, SX; Lehmann, R; Bernard, S; Rueff, J-P; Bergmann, U; Bertrand, L; **Disentangling the Chemistry of Australian Plant Exudates from a Unique Historical Collection**, *Proc Natl Acad Sci* **119**, e2116021119 (2022) https://doi.org/10.1073/pnas.2116021119

217. Zhang, Y; Kroll, Th; Weninger, C; Michine, Y; Fuller, FD; Zhu, D; Alonso-Mori, R; Sokaras, D; Lutman, A; Halavanau, A; Pellegrini, C; Benediktovitch, A; Yabashi, M; Inoue, I; Inubushi, Y; Osaka, T; Yamada, J; Babu, G; Salpekar, D; Sayed, FN; Ajayan, PM; Kern, J; Yano, J; Yachandra, VK; Yoneda, H; Rohringer, N; Bergmann, U; **Generation of Intense Phase-Stable Femtosecond Hard X-ray Pulse Pairs**, *Proc Natl Acad Sci* **119**, e2119616119 (2022) https://doi.org/10.1073/pnas.2119616119

216. Ohmer, CJ; Dasgupta, M; Patwardhan, A; Bogacz, I; Kaminsky, C; Doyle, MD; Chen, PY-T; Keable, SM; Makita, H; Simon, PS; Massad, R; Fransson, T; Chatterjee, R; Bhowmick, A; Paley, DW; Moriarty, NW; Brewster, AS; Gee, LB; Alonso-Mori, R; Moss, F; Fuller, FD; Batyuk, A; Sauter, NK; Bergmann, U; Drennan, CL; Yachandra, VK; Yano, J; Kern, JF; Ragsdale SW; **XFEL serial crystallography reveals the room temperature structure of methyl-coenzyme M reductase**, *Journal of Inorganic Biochemistry* **230**, 111768 (2022) https://doi.org/10.1016/j.jinorgbio.2022.111768

215. DePalma, RA; Oleinik, AA; Gurche, LP; Burnham, DA; Klingler, JJ; McKinney, CJ; Cichocki, FP; Larson, PL; Egerton, VM; Wogelius, RA; Edwards, NP; Bergmann, U; Manning, PL; **Seasonal calibration of the end cretaceous Chicxulub impact event**, *Scientific Reports* **11**, 23704 (2021) https://doi.org/10.1038/s41598-021-03232-9

214. Fransson, Th; Alonso-Mori, R; Chatterjee, R; Cheah, MH; Ibrahim, M; Hussein, R; Zhang, M; Fuller, FD; Gul, S; Kim, I-S; Simon, PhS; Bogacz, I; Makita, H; de Lichtenberg, C; Song, S; Batyuk, A; Sokaras, D; Massad, R; Doyle, M; Britz, A; Weninger, C; Zouni, A; Messinger, J; Yachandra, VK; Yano, J; Kern, J; Bergmann, U; **Effects of X-ray Free-Electron Laser Pulse Intensity on the Mn Kβ1,3 X-ray Emission Spectrum in Photosystem II - A Case Study for Metalloprotein Crystals and Solutions**, *Struct. Dyn.* **8**, 064302 (2021) https://doi.org/10.1063/4.0000130

213. Hussein, R; Ibrahim, M; Bhowmick, A; Simon, PS; Chatterjee, R; Lassalle, L; Doyle, M; Bogacz, I; Kim, I-S; Cheah, MH; Gul, S; de Lichtenberg, C; Chernev, P; Pham, CC; Young, ID; Carbajo, S; Fuller, FD; Alonso-Mori, R; Batyuk, A; Sutherlin, KD; Brewster, AS; Bolotovsky, R; Mendez, D; Holton, JM; Moriarty, NW; Adams, PD; Bergmann, U; Sauter, NK; Dobbek, H; Messinger, J; Zouni, A; Kern, J; Yachandra, VK; Yano, J; **Structural Dynamics in the Water and Proton Channels of Photosystem II During the S2 to S3 Transition**, *Nature Communications* **12**, 6531 (2021) https://doi.org/10.1038/s41467-021-26781-z

212. Fuller, FD; Mustoe, C; Uwe Bergmann, U; Alonso-Mori, R; Sokaras, D; Inoue, I; Yamada, J; Taito Osaka, T; **Analytic von Hamos geometry optimization and calibration**, *Proc. of SPIE* **11838** (2021) https://doi.org/10.1117/12.2594019

211. Rabe, P; Kamps, JJAG; Sutherlin, KD; Linyard, JDS; Aller, P; Pham, CC; Makita, H; Clifton, I; McDonough, MA; Leissing, ThM; Shutin, D; Lang, PA; Butryn, A; Brem, J; Gul, S; Fuller, FD; Kim, I-S; Cheah, MH; Fransson, Th; Bhowmick, A; Young, ID; O'Riordan, L; Brewster, AS; Pettinati, I; Doyle, M; Joti, Y; Owada, S; Tono, K; Batyuk, A; Hunter, MS; Alonso-Mori, R; Bergmann, U; Owen, RL; Sauter, NK; Claridge, TDW; Robinson, CV; Yachandra, VK; Yano, J; Kern, J; Orville, AM; Schofield, CJ; **X-ray free electron laser studies reveal correlated motion during isopenicillin N synthase catalysis**, *Science Advances* **7**, eabh0250 (2021) https://doi.org/10.1126/sciadv.abh0250

210. Ibrahim, M; Moriarty, NW; Kern, J; Holton, JM; Brewster, AS; Bhowmick, A; Bergmann, U; Zouni, A; Messinger, J; Yachandra, VK; Yano, J; Dobbek, H; Sauter, NK; Adams, PD; **REPLY TO WANG ET AL.: Clear evidence of binding of Ox to the oxygen-evolving complex of photosystem II is best observed in the omit map**, *Proc Natl Acad Sci*, **118**, e2102342118 (2021); https://doi.org/10.1073/pnas.2102342118

209. Fuller, FD; Loukianov, A; Takanashi, T; You, D; Li, Y; Ueda, K; Fransson, Th; Yabashi, M; Katayama, T;

Weng, T-C; Alonso-Mori, R; Bergmann, U; Kern, J; Yachandra, VK; Wernet, Ph; Yano J; **Resonant X-ray Emission spectroscopy from broadband stochastic pulses at an X-ray free electron laser**, *Communications Chemistry* **4**, 84 (2021) https://doi.org/10.1038/s42004-021-00512-3

208. Halavanau, A; Zhou, G; Emma, C; A. Lutman, A; Ding, Y; Aquila, A; Krasnykh, A; Nguyen, DC; Aldaba, V; Montagne, T; Decker, F.-J.; Mayes, C; Zhu, D; Meuren, S; Reis, D; Huang, Z; A. Marinelli, A; Glenzer, S; Pellegrini, C; Coco, D; Bergmann, U; **Double Bunch FEL at LCLS-II**, LCLS-II technical note: LCLS-II-20-09, January 2021

207. Bergmann, U; Kern, J; Schoenlein, RW; Wernet, Ph; Yachandra, VK; Yano, J; **Using X-ray free-electron lasers for spectroscopy of molecular catalysts and metalloenzymes**, *Nature Reviews Physics* **3**, 264 (2021) https://doi.org/10.1038/s42254-021-00289-3

206. Reinhard, ME; Mara, MW; Kroll, Th; Lim, H; Hadt, RG; Alonso-Mori, R; Chollet, M; Glownia, JM; Nelson, S; Sokaras, D; Kunnus, K; van Driel, TB; Hartsock, RW; Kjaer, KS; Weninger, C; Biasin, E; Gee, LB; Hodgson, KO; Hedman, B; Bergmann, U; Solomon, EI; Gaffney, KJ; **Short-lived metal-centered excited state initiates iron-methionine photodissociation in ferrous cytochrome c**, *Nature Communications* **12**, 1086 (2021) https://doi.org/10.1038/s41467-021-21423-w

205. Britz, A; Attar, AR; Zhang, X; Chang, H-T; Nyby, C; Krishnamoorthy, A; Park, SH; Kwon, S; Kim, M; Nordlund, D; Sainio, S; Heinz, TF; Leone, SR; Lindenberg, AM; Nakano, A; Ajayan, P; Vashishta, P; Fritz, D; Lin, M-F; Bergmann, U; **Carrier-specific dynamics in 2H-MoTe2 observed by femtosecond soft X-ray absorption spectroscopy using an X-ray free-electron laser**, *Structural Dynamics* **8**, 014501 (2021) https://doi.org/10.1063/4.0000048

204. Attar, AR; Chang, H-T; Britz, A; Zhang, X; Lin, M-F; Krishnamoorthy, A; Linker, Th; Fritz, D; Neumark, DM; Kalia, RK; Nakano, A; Ajayan, P; Vashishta, P; Bergmann, U; Leone, SR; **Simultaneous Observation of Carrier-Specific Redistribution and Coherent Lattice Dynamics in 2H-MoTe2 with Femtosecond Core-Level Spectroscopy**, *ACS Nano* **14**, 11, 15829 (2020) https://dx.doi.org/10.1021/acsnano.0c06988

203. Gueriau, P; Lamsdell, JC; Wogelius, RA; Manning, PL; Egerton, VM; Bergmann, U; Bertrand, L; Denayer, J; **A new Devonian euthycarcinoid reveals the use of different respiratory strategies during the marine-to-terrestrial transition in the myriapod lineage**, *R. Soc. Open Sci.* **7**, 201037 http://dx.doi.org/10.1098/rsos.201037

202. Alonso-Mori, R; Dimosthenis Sokaras, D; Cammarata, M; Ding, Y; Feng, Y; Fritz, D; Gaffney, KJ; Hastings, J; Kao, C-C; Lemke, HT; Maxwell, T; Robert, A; Schropp, A; Seiboth, F; Sikorski, M; Song, S; Weng, T-C; Zhang, W; Glenzer, S; Bergmann, U; Zhu, D; **Femtosecond electronic structure response to high intensity XFEL pulses probed by iron X-ray emission spectroscopy**, *Scientific Reports* **10**, 16837 (2020) https://doi.org/10.1038/s41598-020-74003-1

201. Stepanic, OMC; Ward, J; Penner-Hahn, JE; Deb, A; Bergmann, U; DeBeer, S; **Probing a silent metal: A Combined X-ray Absorption and Emission Spectroscopic Study of Biologically Relevant Zinc Complexes**, *Inorganic Chemistry* **59**, 13551 (2020) https://dx.doi.org/10.1021/acs.inorgchem.0c01931

200. Srinivas, V; Banerjee, R; Lebrette, H; Jones, JC; Aurelius, O; Kim, I-S; Pham, CC; Gul, S; Sutherlin, KD; Bhowmick, A; John, J; Bozkurt, E; Fransson, Th; Aller, P; Butryn, A; Bogacz, I; Simon, Ph; Keable, S; Britz, A; Tono, K; Kim, KS; Park, S-Y; Lee, SJ; Park, J; Alonso-Mori, R; Fuller, FD; Batyuk, A; Brewster, AS; Bergmann, U; Sauter, NK; Orville, AM; Yachandra, VK; Yano, J; Lipscomb, JD; Kern, J; Högbom, M; **High Resolution XFEL Structure of the Soluble Methane Monooxygenase Hydroxylase Complex with its Regulatory Component at Ambient Temperature in Two Oxidation States**, *J. Am. Chem. Soc.* **142**, 14249, (2020) https://dx.doi.org/10.1021/jacs.0c05613

199. Kroll, Th; Weninger, C; Fuller, FD; Guetg, MW; Benediktovitch, A; Zhang, Y; Marinelli, A; Alonso-Mori, R; Aquila, A; Liang, M; Koglin, JE; Koralek, J; Sokaras, D; Zhu, D; Kern, J; Yano, J; Yachandra, VK; Rohringer, N; Lutman, A; Bergmann, U; **Observation of Seeded Mn Kβ Stimulated X-ray Emission Using Two-color**

X-ray Free Electron Laser Pulses, *Phys. Rev. Lett*. **125**, 037404 (2020) https://doi.org/10.1103/PhysRevLett.125.037404

198. Halavanau, A; Benediktovitch, A; Lutman, AA; DePonte, D; Cocco, D; Rohringer, N; Bergmann, U; Pellegrini, C; **Design and Characteristics of a Population Inversion X-ray Laser Oscillator**, *Proc Natl Acad Sci* **117**, 15511 (2020) www.pnas.org/cgi/doi/10.1073/pnas.2005360117

197. Ibrahim, M; Fransson, Th; Chatterjee, R; Cheah, MH; Hussein, R; Lassalle, L; Sutherlin, K; Young, ID; Fuller, FD; Gul, S; Kim, I; Simon, PS; de Lichtenberg, C; Chernev, P; Bogacz, I; Pham, C; Orville, AM; Saichek, N; Northen, T; Batyuk, A; Carbajo, S; Alonso-Mori, R. Tono, K; Owada, S; Bhowmick, A; Bolotovsky, R; Mendez, D; Moriarty, NW; Holton, JM; Dobbek, H; Brewster, AS; Adams, PD; Sauter, NK; Bergmann, U; Zouni, A; Messinger, J; Kern, J; Yachandra, VK; Yano J; **Untangling the Sequence of Events During the $S_2 \rightarrow S_3$ Transition in Photosystem II: Implications for the Water Oxidation Mechanism**, *Proc Natl Acad Sci* **117**, 12624 (2020) https://doi.org/10.1073/pnas.2000529117

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Invited talks (2001 – November 2023):

Can X-rays Shed Light on the Origins of Printing?, Synchrotron Symposium at the Canadian Chemistry Conference, CSC 2023, Vancouver, June 6, 2023

X-ray Fluorescence Imaging at SLAC, Symposium on 'Telling the From Jikji to Gutenberg Story' Library of Congress, Washington, DC, April 13, 2023

Recent Progress and Potential Applications of Stimulated X-ray Emission, SACLA Users' Meeting 2023, March 3, 2023

Stopping Time – The Emerging Science of Powerful X-ray Lasers, 2022 SSRL/LCLS USERS' MEETING, 'SLAC Fundamentals' Workshop, Virtual Meeting, September 26, 2022

Making Movies of Molecules - The Emerging Science of Powerful X-ray Lasers, Colloquium at the Department of Physics and Astronomy at Purdue University, West Lafayette, IN, August 25, 2022

Going Forward – Advances in Stimulated X-ray Emission Spectroscopy, Plenary Talk, 18th International Conference on X-Ray Absorption and Fine Structure HYBRID, XAFS2022, Sydney, Australia, July 14, 2022

Bringing Our History to Light – X-ray Imaging of Ancient Materials from Archimedes to Indigenous Australian Art, Evening Lecture at the Chau Chak Wing Museum, The University of Sydney, Australia, July 12, 2022

Advances in Linear and Nonlinear X-ray Emission Spectroscopy – Electronic Structure Probe and New Applications for Ultrafast X-ray Science, ACS Symposium on "Opportunities and Challenges in Ultrafast X-ray Science in Chemistry: Theory and Experiment" at the ACS Spring Meeting, San Diego, March 24, 2022 (Zoom talk)

New Results of Transition Metal X-ray Emission Spectroscopy at XFELs, FXE Chemical Dynamics Workshop European XFEL, Zoom, November 2, 2021

Making Movies of Molecules -The Emerging Science of Powerful X-ray Lasers, Evening Lecture at Investiture Ceremony in the Department of Physics at UW-Madison, Madison, WI, September 9, 2021, YouTube video of lecture at: https://www.physics.wisc.edu/department/alumni-friends/prof-bergmanns-investiture-ceremony/

Progress in Soft X-ray FEL-Enabled Spectroscopy Workshop 'Towards an Ultra-Compact X-ray Free-Electron Laser' (UCLA) Zoom, July 20, 2021

Imaging of the Syriac Galen Palimpsest with Powerful X-rays. International Society for the History of Pharmacy, ISHP Virtual Symposium, Zoom, April 23, 2021

X-ray Fluorescence Imaging of Ancient Palimpsests – From Archimedes of Syracuse to Galen of Pergamon, XAS Journal Club (U Washington), Zoom, March 25, 2021

X-ray Fluorescence Imaging of Ancient Palimpsests – From Archimedes of Syracuse to Galen of Pergamon, R-CHIVE, Rochester Institute of Technology, New York, March 5, 2021

X-ray Fluorescence Imaging of Ancient Palimpsests – From Archimedes to Galen, Journées d'études interdisciplinaires, Paris, January 21, 2021

A Population Inversion X-ray Laser Oscillator, 'Science with Femtosecond X-ray Pulses' Workshop at the 2020 Virtual SSRL/LCLS Users' Meeting, SLAC National Accelerator Laboratory, September 28, 2020

Archimedes Brought to Light - Synchrotron X-ray Imaging of Ancient Writings, Physics Colloquium at Ohio State University, Ohio, September 8, 2020

How to Conquer the Data Challenge at High- Repetition Rate X-Ray Lasers, CONFERENCE ON A FAIR DATA INFRASTRUCTURE FOR MATERIALS GENOMICS Berlin, Germany, June 4, 2020
(Zoom meeting, presentation YouTube link: https://youtu.be/-dzCYnixsp8)

Verborgen im Pergament: Röntgenstrahl enthüllt älteste Schriften von Archimedes, Rotary Club Frankfurt am Main Palmengarten, Online-Meeting, 27. Mai 2020

X-ray Fluorescence Imaging of Ancient Writings – From Archimedes of Syracuse to Galen of Pergamon, Pittcon 2020, The Science behind Cultural Heritage Materials: Preserving our Past, Chicago, Il, March 4, 2020

Non-Linear X-ray Emission Spectroscopy on 3d Transition Metals, Soft X-ray RIXS Workshop, SLAC National Accelerator Laboratory, Menlo Park, CA, February 3, 2020

Non-Linear X-ray Emission Spectroscopy on 3d Transition Metals, UK X-FEL Science Case: Workshop on Chemical Dynamics and Energy G.003, Urban Sciences Building, Newcastle University, December 11, 2019

Verborgen im Pergament: Röntgenstrahl enthüllt älteste Schriften von Archimedes, Innenansichten – Die Welt for Röntgen, Universität im Barockschloss, Mannheim, Germany, November 14, 2019

Synchrotron-Rapid-Scan X-ray Fluorescence Imaging of the Syriac Galen Palimpsest, Exploring the Syriac Galen Palimpsest, The John Rylands Library, University of Manchester, England, November 1, 2019

Science Opportunities with Powerful New X-ray Sources, Herb Seminar at University of Wisconsin-Madison, Madison, WI, October 3, 2019

Non-Linear X-ray Emission Spectroscopy on 3d Transition Metals, Developments & Challenges in X-ray Spectroscopies and Ultrafast Dynamics: Experiment and Theory, Workshop at the 2019 Annual LCLS/SSRL Users Meeting SLAC, September 27, 2019

Non-Linear X-ray Emission Spectroscopy at SACLA BL3, SALCA User Meeting 2019, Hyogo, Japan, August 29, 2019

Stimulated X-ray Emission Spectroscopy, SALCA User Meeting 2019, Hyogo, Japan, August 29, 2019

New Science Opportunities at X-ray Free Electron Lasers, Seminar at The University of Western Ontario, London, Ontario, July 26, 2019

Making Movies of Molecules – The Science and Application of SLAC's New X-ray Laser, SLAC Summer Intern Seminar, SLAC National Accelerator Laboratory, Menlo Park, CA July 9, 2019

Uncovering Hidden Writings with X-ray Vision, Lecture at Palo Alto Rotary Club, Palo Alto, CA, April 1, 2019

Making Movies of Molecules – The Science and Application of SLAC's New X-ray Laser, Lecture at Kiwanis Club of Palo Alto, Palo Alto, CA, May 16, 2019

New Science Opportunities at X-ray Free Electron Lasers, Physics Colloquium at University of Wisconsin-Madison, Madison, WI, April 26, 2019

Recent Advances in X-ray Fluorescence Imaging and X-ray Raman based Carbon Speciation of Ancient Materials, WORLD MEETING PARIS 2019, Heritage Sciences and Technologies, Scientific Symposium, Frontiers in Heritage Science, Paris, France, February 14, 2019

X-ray Fluorescence Imaging of Ancient Materials - From Archimedes to Archaeopteryx and Beyond SLAC Colloquium, SLAC National Accelerator Laboratory, Menlo Park, CA, November 26, 2018

Non-Linear X-ray Methods, LCLS-II-HE Advanced Methods & Instrumentation Workshop, SLAC National Accelerator Laboratory, Menlo Park, CA, October 16, 2018

Seeing the Invisible - The Science and Applications of Powerful X-Rays, Business and Technology Services Town Hall, SLAC, CA, August 16, 2018

Stimulated X-Ray Emission Spectroscopy in Transition Metal Complexes, Invited talk at Chemical Applications of Ultrafast X-ray/XUV Spectroscopy and Scattering Symposium at the ACS Fall National Meeting 2018, Boston, MA, August 22, 2018

Seeing the Invisible - The Science and Applications of Powerful X-Rays, Business and Technology Services Town Hall, SLAC National Accelerator Laboratory, CA, August 16, 2018

The Science and Application of Powerful X-rays, COSMOS Students and Teachers Visit, SLAC National Accelerator Laboratory, CA, July 26, 2018

X-ray Fluorescence Imaging of Ancient Materials - From Archimedes to Archaeopteryx and Beyond, Plenary lecture for UNESCO International Day of Light at Ancient Materials' Training School Organized by IPANEMA (CNRS, MiC, UVSQ) H2020 project Open Sesame, Cyprus Institute, Nicosia, Cyprus, May 16, 2018

X-ray Fluorescence Imaging of Ancient Materials - From Archimedes to Archaeopteryx and Beyond, 5th Moossa J. Arman Physics Colloquium: Science and Innovation, University of California Los Angeles, April 16, 2018

Bringing the Dino-Birds to Life – Synchrotron X-ray Fluorescence and Raman Imaging of Ancient Materials, 2018 Joint meeting of DPG and EPS Condensed Matter Divisions, TU Berlin, March 16, 2018

Water under X-ray Vision – A New Look at Life's Mysterious Elixir, Plenary Lecture at Darwin Week, College of Charleston, February 5, 2018

Making Movies of Molecules – The Science and Applications of X-Ray Lasers, Physical Chemistry Seminar at University of Illinois at Urbana-Champaign, October 25, 2017

Probing Chemical Reactions with High-Resolution X-ray Spectroscopy, Workshop: High-Energy Resolution Methods in X-ray Absorption Spectroscopy, Australian Synchrotron, Clayton, Victoria, Australia, September 18, 2017

The Science and Application of Powerful X-rays, COSMOS Students and Teachers Visit, SLAC National Accelerator Laboratory, CA, July 28, 2017

Making Movies of Molecules – The Science and Applications of X-Ray Lasers, Seminar at Rice University, Houston, Texas, April 13, 2017

Les traités d'Archimède enfin déchiffrés Les rayons X au service de la connaissance et de la valorisation des manuscrits (The treatises of Archimedes finally deciphered) Bibliothèque nationale de France, Site François Mitterrand, Paris, March 2, 2017

X-ray Spectroscopy and Diffraction of reaction intermediates using an X-ray Free Electron Laser, Heliobio Seminar, Synchrotron SOLEIL, Gif-sur-Yvette, France, February 27, 2017

Making Movies of Molecules – The Science and Applications of X-Ray Lasers, Seminar, Synchrotron SOLEIL, Gif-sur-Yvette, France, February 13, 2017

Déchiffrer des documents anciens à l'aide de méthodes de rayons X modernes (Deciphering ancient Documents with modern X-ray methods), Journée FSP-PATRIMA / EPHE Études avancées de documents graphiques c, Paris, January 24, 2017

Synchrotron X-ray Imaging of Cultural Heritage: A Collaboration, Seminar at Stanford East Asia Library, Stanford. October 20, 2016

Seeing the Invisible – The Science and Applications of X-Rays, 2016 Los Altos High School STEM Week, Los Altos, CA, October 27, 2016

Synchrotron X-ray Fluorescence Imaging since the Archimedes Palimpsest, Conference 'Hidden Treasure: Medieval Manuscript Fragments and Digital Research Methods', Universiteit Leiden, September 27, 2016

X-ray Spectroscopy and Diffraction of reaction intermediates using an X-ray Free Electron Laser, Workshop on 'New Frontiers and Emerging Techniques' at the annual Diamond Synchrotron Radiation User Meeting, Oxfordshire, UK, September 9, 2016

Rapid Scan X-ray Fluorescence Imaging in Cultural Heritage and Beyond, Gordon Research Conference on Scientific Methods in Cultural Heritage Research, Sunday River, Newry, ME, August 1, 2016

The Science and Application of Powerful X-rays, COSMOS Students and Teachers Visit, SLAC National Accelerator Laboratory, CA, July 29, 2016

High-resolution Photon-in Photon-out Spectroscopy and Imaging with Hard X-rays, CHESS "Hard X-ray Spectroscopies and Imaging Workshop", Ithaca, NY, June 20, 2016

Hard X-ray Photon-in Photon-Out Spectroscopy at X-ray Free Electron Lasers, Stockholm Symposium on "Fundamental X-ray Science and its Application to Catalysis and Water Research: Future Directions", Stockholm University, Sweden, May 12, 2016

Making Movies of Molecules – The Science and Applications of X-Ray Lasers, Department of Physics Colloquium, University of Wisconsin-Milwaukee, April 22, 2016

Seeing the Invisible – The Science and Applications of X-Rays, STIP 2016 Meeting at SLAC, Menlo Park, CA, April 11, 2016

Perspectives on X-ray Facility Research and Interdisciplinarity, Matériaux du patrimoine et patrimoine matériel, Atelier interdisciplinaire, Ecole Polytechnique, March 9, 2016

New X-ray Imaging Approaches and Capacities of Novel Light Sources in Heritage Sciences, Heritage Sciences: Issues and Perspectives, Muséum national d'histoire naturelle, Paris, March 9, 2016

Making Movies of Molecules – The Science and Applications of X-Ray Lasers, Physics Colloquium, UC Santa Cruz, California, February 4, 2016

Observation of Strongly Stimulated X-ray Emission from Manganese Solutions at the 5.9 keV Kα Fluorescence, invited talk at PQE-2016, The 46th Winter Colloquium on the Physics of Quantum Electronics, Snowbird, Utah, January 6, 2016

X-ray Emission Spectroscopy of Transition Metal Systems using an X-ray Free Electron Laser, Plenary Talk at IXS 2015, The 9th International Conference on Inelastic X-Ray Scattering Hsinchu, Taiwan, November 24, 2015

X-ray Fluorescence Imaging at SLAC – Recent Results and New Ideas, invited talk at the Bay Area Conservation Science Initiative Exploratory Meeting, Cantor Art Center, Stanford, CA, November 5, 2015

Seeing the Invisible – The Science and Applications of X-Rays, Physics Colloquium, New Mexico State University, Las Cruces, NM, October 29, 2015

Hard X-ray Emission Spectroscopy in Transition Metal Complexes at the LCLS, Seminar at European XFEL, Hamburg, September 16, 2015

Hard X-ray Emission Spectroscopy in Transition Metal Complexes at the LCLS, Seminar at Helmholtz Zentrum Berlin, Germany, September 14, 2015

World Class Scientific Research with Synchrotron Radiation: An Overview, Lecture at COSMOS Students and Teachers Visit, SLAC National Accelerator Laboratory, CA, July 22, 2015

Making Movies of Molecules – The Science and Application of X-rays Lasers, SULI Student Lecture, SLAC National Accelerator Laboratory, CA, July 22, 2015

Seeing the Invisible – The Science and Applications of X-Rays, Lecture at the Stanford Summer Research for Teachers Program Group, SLAC National Accelerator Laboratory, July 6, 2015

Making Movies of Molecules – The Science and Applications of X-Ray Lasers, Chemistry Seminar at University of Utah, Salt Lake City, Utah, May 11, 2015

Making Movies of Molecules – The Science and Applications of X-Ray Lasers, Seminar at ARUP Laboratories, Salt Lake City, Utah, May 11, 2015

Seeing the Invisible – The Science and Applications of X-Rays, Seminar at Spectra-Physics, Santa Clara, CA, May 8, 2015

Light Sources in Life Sciences – Current Work and Future Prospects, Canadian Light Source 18th Annual Users' Meeting and Workshops, Perspectives on Furthering Synchrotron Research in the Biological and Life Sciences workshop, Saskatoon, Canada, May 5th, 2015

The Study of Solar Fuels with Powerful New X-ray Sources, 1st International Solar Fuels Conference (ISF-1), Uppsala, Sweden, April 27, 2015

Making Movies of Molecules – The Science and Application of X-rays Lasers, Stanford Applied Physics 483 Optics & Electronics Seminar, Stanford, CA, April 13, 2015

Making Movies of Molecules – The Science and Application of X-rays Lasers, AAAS 2015 Annual Meeting, Celebration of 2015: The International Year of Light, San Jose, CA, February 13, 2015

Going Ultra-Short and Ultra-Bright – The Science and Applications of the World's first X-ray Free Electron Laser, Physics Colloquium, Kansas State University, January 26, 2015, Manhattan, Kansas

Solving Protein Structures at Room Temperature with an X-Ray Free Electron Laser, Beijing Institute of Technology's 5th World Gene Convention, Annual Congress of Molecular Medicine, Haikou, China, November 15, 2014

Seeing the Invisible – The Science and Applications of X-Rays, PIER Graduate Week, Interdisciplinary workshop and lecture week for PhD students, Hamburg, Germany, October 6, 2014

X-ray Fluorescence Imaging: From Archimedes to Archaeopteryx and Beyond, Synchrotron Radiation and Neutrons in Art and Archeology Conference, Invited Lecture in the Public Session, Musée du Louvre, Paris, September 10, 2014

LCLS – Highlights and Future Upgrades, Seminar at Elettra-Sincrotrone Trieste, Italy, September 8, 2014

X-ray Free-Electron Lasers: Next-Generation Crystallography, C&EN ACS Webinar, August 7, 2014

The Science and Application of X-Rays at the Structural Biology Facilities at SLAC National Accelerator Laboratory, FASEB, International Biology and Biomedical Conferences, Snowmass, CO, August 1, 2014

Studying Photosynthesis with the World's Most Powerful X-ray Laser, SULI Talk, SLAC National Accelerator Laboratory, Menlo Park, CA, July 16, 2014

Durchleuchtet - Röntgenstrahl enthüllt Archimedes älteste Schriften, Öffentliches Helmholtz-Symposium, Haus der Wissenschaft, Braunschweig, Germany, June 24, 2014

Seeing the Invisible – The Science and Applications of X-Rays, Silicon Valley Nexus, Art/Science/Technology, May 28, 2014, Nature Gallery, Los Altos, CA

LCLS Update and New Developments, Workshop on Advanced X-Ray FEL Development, DESY, Hamburg, Germany, May 21, 2014

Project Update and New Developments at LCLS, 6th Hard X-Ray FEL Collaboration Meeting, DESY, Hamburg, Germany, May 19, 2014

The LCLS Free Electron X-Ray Laser - Overview of Facility and its Science, Palo Alto Colloquium, Lockheed Martin, Palo Alto, CA, May 15, 2014

Seeing the Invisible – The Science and Applications of X-Rays, National Science Bowl, Bethesda, MD, April 25, 2014

LCLS – The Upgrade Path, American Physical Society Spring Meeting, Savannah, Georgia, April 6, 2014

Seeing the Invisible - The Science and Applications of X-Rays, Leonardo Art/Science Evening Rendezvous of Stanford University, Packard Auditorium in the Hewlett Teacher Center, December 12, 2013

Studying Photosynthesis with the World's Most Powerful X-ray Laser, SULI Talk, SLAC National Accelerator Laboratory, Menlo Park, CA, June 26, 2013

LCLS – The New X-Ray Laser at SLAC, Physics and Astronomy Colloquium, Sacramento State University, Sacramento, CA, March 21, 2013

Simultaneous Femtosecond X-ray Spectroscopy and Diffraction of Photosystem II at Room Temperature Fourth Workshop on Science with FELs, Schloss Ringberg, Germany, February 20, 2013

Archaeopteryx - Bringing the Dino-Birds to Life, Invited Lecture at 2012 California Science Education Conference, San Jose, CA October 20, 2012

Overview – Role of Light Sources in Research, Workshop: De-Mystifying the Light Source Experience – 2012 SSRL/LCLS Users' Conference & Workshops, SLAC National Accelerator Laboratory, Menlo Park, CA, October 03, 2012

Science at the LCLS – A First Summary, Physics and Astronomy Colloquium, University of Southern California, Los Angeles, CA, September 17, 2012

The LCLS Free Electron X-Ray Laser – Overview of Facility and Science, 8th Annual DOE Laser Safety Officer Workshop, SLAC National Accelerator Laboratory, Menlo Park, CA, September 11, 2012

Time resolved X-Ray Spectroscopy of Photosynthetic Water Splitting – What We Would Like to Do in the Future, LBNL Workshops on: Refining Science Requirements for the Next Generation Light Source, LBNL, Berkeley, CA, August 23, 2012

X-ray Raman and Emission Spectroscopy - Recent Results and new Opportunities for X-Ray Free Electron Lasers, International Conference on Raman Spectroscopy, Bangalore, India, August 13, 2012

X-Ray Research Facilities at SLAC, Seminar at Robert Bosch LLC, Research and Technology Center Palo Alto, CA, July 23, 2012

Biology at the LCLS – A First Summary, Structural Molecular Biology Summer School 2012, SLAC, National Accelerator Laboratory, Menlo Park, CA, July 17, 2012

Bringing the Dino-Birds to Life, SULI Talk, SLAC National Accelerator Laboratory, Menlo Park, CA, July 16, 2012

LCLS – The X-Ray Free Electron Laser at SLAC, Hewlett Packard R&D Engineering Seminar, Palo Alto, CA, June 21, 2012

Bringing the Dino-Birds to Life, Seminar, Synchrotron SOLEIL, Gif-sur-Yvette, France, May 15, 2012

Science at the LCLS – A First Summary, Seminar, Synchrotron SOLEIL, Gif-sur-Yvette, France, May 14, 2012

Jitter Corrections at LCLS, Workshop: X-rays in the Fourth Dimension, Chicago, Illinois, May 05, 2012

Bringing the Dino-Birds to Life, Santa Clara Valley Audubon Society Lecture, Cubberly Community Center, Palo Alto, CA, April 18, 2012

Structure Determination of Biomolecules with Femtosecond X-ray Pulses, Stanford Symposium on Biomedical Imaging, Stanford University, CA, April 6, 2012

Archimedes' Oldest Writings Under X-ray Vision, Physics Colloquium, Nothern Illinois University, DeKalb, Il, March 23, 2012

Bringing the Dino-Birds to Life, Physics and Astronomy Colloquium, University of Minnesota, Twin Cities, March 21, 2012

Finding an Individual Atom, Palo Alto University Rotary Club Salon, Palo Alto, CA, March 14, 2012

Bringing the Dino-Birds to Life, PIER Photon Science Colloquium, DESY, Hamburg, Germany, March 2, 2012

Science at LCLS – A First Summary, XFEL Seminar, European X-Ray Free Electron Laser, Hamburg, Germany, March 1, 2012

Science at LCLS – A First Summary, Helmholtz Zentrum Berlin Science with Photons Seminar, Berlin, Germany, February 29, 2012

Science at LCLS – A First Summary, Celsius-Linné Symposium, Uppsala University, Uppsala, Sweden, February 17, 2012

Bringing the Dinobirds to Life, KBC Lecture, Umeå University, Umeå, Sweden, February 15, 2012

X-ray Free Electron Lasers – a Powerful New Tool for Astrophysics, Radcliffe Seminar, Condensed Matter Astrophysics, The Rise of Complexity Harvard University, Cambridge, MA, January 27, 2012

Rapid-Scan X-Ray Fluorescence Imaging – From Archimedes to Archaeopteryx, Astrophysics Colloquium, SLAC National Accelerator Laboratory, Menlo Park, CA, October 27, 2011

Bringing the Dinobirds to Life, Lockheed Martin Colloquium, Palo Alto, CA, October 7, 2011

Making Molecular Movies, Palo Alto International Film Festival, Palo Alto, CA, October 1, 2011

Range-Extended EXAFS and Advanced Methods, Synchrotron X-Ray Absorption Spectroscopy Summer School, SLAC National Accelerator Laboratory, Menlo Park, CA, June 28 , 2011

Seeing the Invisible, TEDX Lecture Series at Gunn High School, Palo Alto CA, May 26, 2011 (talk is on Youtube at: http://www.youtube.com/watch?v=K7Rnk9DFPiU)

LCLS – First Science And New Opportunities, DOE Office of Science Colloquium, Germantown, MD, April 8, 2011

My Journey at SLAC, SLAC 20, 30 and 40 year employee recognition celebration, SLAC National Accelerator Laboratory, Menlo Park, CA, March 30, 2011

Darwin's Dinobird Under X-Ray Vision, Palo Alto University Rotary Club Lecture, Palo Alto, CA, March 25, 2011

Archaeopteryx - Bringing the Dinobird to Life, SLAC Special Lunch Lecture, SLAC National Accelerator Laboratory, Menlo Park, CA, January 26, 2011

Archaeopteryx - Bringing the Dinobird to Life, SLAC Public Lecture, SLAC National Accelerator Laboratory, Menlo Park, CA, January 25, 2011
(lecture can be seen at: http://www2.slac.stanford.edu/lectures/default.asp?id=lecture_video&eventID=162

LCLS – One Year After the X-Ray Laser has Turned on, SLAC Colloquium, SLAC National Accelerator Laboratory, Menlo Park, CA, November 29, 2010

LCLS – The X-Ray Laser Has Turned On Physics Colloquium, University of California, Santa Cruz, CA, November 18, 2010

Rapid-Scan X-Ray Fluorescence Imaging of Ancient Documents - The Archimedes Project and Beyond, 2010 Eastern Analytical Symposium & Exposition, Garden State Exhibit Center, Somerset, NJ, November 15, 2010

LCLS – The X-Ray Laser has Turned on, APS Colloquium, Argonne National Laboratory, Argonne, Il, November 3, 2010

Rapid-Scan X-ray Fluorescence Imaging of Ancient Documents, EIKONOPOIIA, Digital imaging of ancient textual heritage: technological challenges and solutions, Helsinki, October 28, 2010

X-ray Vision – Revealing Ancient Secrets with New Technology, USA Science and Engineering Festival, AAAS Meet the Scientist, Washington DC, October 23, 2010

LCLS – First Science and Future, The 16th Pan-American Synchrotron Radiation Instrumentation Conference, Argonne National Laboratory, Argonne, Il, September 24, 2010

Rapid-Scan X-Ray Fluorescence Imaging – The Archimedes Project and Beyond, SULI Talk, SLAC, July 29, 2010

Science and Technology of Future Light Sources, National User Facility Organization Annual Meeting Brookhaven National Laboratory, Upton, New York, June 8, 2010

Archimedes' Oldest Writings Under X-ray Vision, Physics Colloquium, UCLA, Los Angeles, CA, April 29, 2010

Rapid-Scan X-ray Fluorescence Imaging of Ancient Documents, 8th SESAME User's Meeting, Petra, Jordan, November 19, 2009

Archimedes' Oldest Writings Under X-Ray Vision, Physics Colloquium, California State University, Long Beach, CA, October 5, 2009

Advanced Hard X-ray Spectroscopy – Recent Results on Water and 3d Transition Metal Systems, 14th International Conference on X-ray Absorption Fine Structure (XAFS XIV), Camerino, Italy, July 28, 2009

(Resonant) Inelastic X-Ray Scattering and X-Ray Emission Spectroscopy, SSRL School on Synchrotron Absorption Spectroscopy Techniques, SLAC National Accelerator Laboratory, Menlo Park, CA, June 2, 2009

Archimedes' Oldest Writings Under X-ray Vision, Brookhaven Women in Science Lecture, Berkner Hall Auditorium, Brookhaven National Laboratory, Upton, NY, May 20, 2009

Advanced Hard X-Ray Spectroscopy – Recent Results on Water and 3d Transition Metals, 2009 Joint NSLS and CFN Users' Meeting, Brookhaven National Laboratory, Upton, NY, May 19, 2009

Archimedes: Ancient Text Revealed with X-ray Vision, Society of California Archivists 38th Annual Meeting, Riverside, CA, May 8, 2009

Archimedes' Oldest Writings under X-ray Vision, Sigma Xi Science Seminar, Loyola Marymount University, Los Angeles, CA, March 23, 2009

Archimedes' Oldest Writings under X-ray Vision, Sigma XI Induction Ceremony and Dinner, Loyola Marymount University, Los Angeles, CA, March 22, 2009

X-ray Vision: Not Just for Superman Anymore, Los Altos High School Science & Technology Speaker Series, Los Altos CA, March 09, 2009

Archimedes Palimpsest: Reading the Unreadable, AAAS Annual Meeting 2009, Session: Casting New Light on Ancient Secrets, Chicago, Il, February 16, 2009

X-ray Vision: Not Just for Superman Anymore, Meet the Scientists at AAAS Family Science Day, AAAS Annual Meeting 2009, Chicago, Il, February 15, 2009

Pseudo-Color Enhanced X-ray Fluorescence Imaging of the Archimedes Palimpsest, IS&T/SPIE Electronic Imaging Symposium, Document Recognition and Retrieval, San Jose, CA, January 21, 2009

Verborgen im mittelalterlichen Pergament: Röntgenstrahl enthüllt Archimedes' älteste Schriften, Public Lecture, Humboldt Gymnasium Karlsruhe, Germany, November 25, 2008

The Archimedes Palimpsest under X-ray Vision, Dinner Talk, 2008 Annual Meeting of the California Section of the American Physical Society, California State University, Dominguez Hills, California, October 17, 2008

Secrets in the Ancient Goatskin: X-Rays Reveal Archimedes' Oldest Writings, APS Colloquium, Argonne National Laboratory, Argonne, Illinois, April 2, 2008

Advanced X-ray Spectroscopy, Yachandra Group Seminar, Lawrence Berkeley National Laboratory, Berkeley, California, March 12, 2008

Secrets in the Ancient Goatskin: Archimedes' Oldest Writings under X-ray Vision, Physics Colloquium, California State University, Sacramento, California, February 28, 2008

Visit at the Accelerator: Archimedes' Writings under X-ray Vision, University of New Mexico, College of Arts and Sciences Institute for Medieval Studies presents Archimedes Revealed: A Public Colloquium on Ancient Science, Medieval Manuscripts, and Modern Technology, Albuquerque, New Mexico, February 16, 2008

Spectroscopy Experiments and the XFEL, Second European XFEL Users' Meeting, DESY, Hamburg, Germany, January 23, 2008

Secrets in the Ancient Goatskin: Archimedes' Oldest Writings under X-ray Vision, Physics Colloquium, UC Santa Cruz, Santa Cruz, California, January 17, 2008

Secrets in the Ancient Goatskin: Archimedes' Oldest Writings under X-ray Vision, NIST Staff Colloquium Series, National Institute of Standards and Technology, Gaithersburg, Maryland, December 7, 2007

Secrets of the Ancient Goatskin: X-rays Reveal Oldest Writings of Archimedes, 2007 DOE Day of Science, Hosted by Oak Ridge National Laboratory at the Knoxville Convention Center, Knoxville, Tennessee, October 29, 2007

Secrets of the Ancient Goatskin: X-rays Reveal Oldest Writings of Archimedes, Physics Colloquium, University of San Francisco, San Francisco, California, October 24, 2007

Inelastic X-ray Scattering, Advanced Spectroscopy and Water, ALS/CXRO Seminar, Berkeley, California, October 17, 2007

Rapid Scan X-ray Fluorescence Imaging of Large Objects at SSRL, Workshop: New Opportunities in Microfocusing, 2007 SSRL User's Meeting, Stanford Linear Accelerator Center, Menlo Park, California, October 3, 2007

Inelastic X-ray Scattering and Advanced Spectroscopy at SSRL, 2007 SSRL User's Meeting, Stanford Linear Accelerator Center, Menlo Park, California, October 1, 2007

Resonant and Non Resonant Inelastic X-ray Scattering, Joint SSRL/ALS Workshop: Introduction to Synchrotron Radiation Techniques, 2007 SSRL User's Meeting, Stanford Linear Accelerator Center, Menlo Park, California, September 30, 2007

Rapid-Scan X-Ray Fluorescence Imaging – New Opportunities not just for Old Objects, Special Symposium on the Future of X-ray Science, 2007 SSRL User's Meeting, Stanford Linear Accelerator Center, Menlo Park, California, September 29, 2007

Archimedes: Ancient Writings under X-ray Vision, Fermilab Public Lecture Series, Fermi National Accelerator Center, Batavia, IL, September 28, 2007

Verborgen im mittelalterlichen Pergament: Röntgenstrahl enthüllt Archimedes' älteste Schriften, Public lecture (in German) at DESY, Hamburg, 11. September, 2007

Inelastic X-ray Scattering and Advanced Spectroscopy with eV Resolution, PETRA III Workshop: Nuclear Resonant and Inelastic X-ray Scattering, Hamburg, Germany, September 10, 2007

Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision, Summer Reading, Palo Alto Library, Palo Alto, California, June 25, 2007

Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision, Public lecture at Polish-American Engineers' Club June Meeting, Little House, Menlo Park, California, June 21, 2007

Effects of isotope substitution, confinement and mixtures on the structure of liquid water - an X-ray Raman scattering study, 6th International Conerence on Inelastic X-ray Scattering IXS2007 at Awaji Yumebutai International Conference Center, Awaji, Japan, May 8, 2007

Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision, Physics Colloquium, Ohio State University, Columbus, OH, May 1st, 2007

Resonant and Non Resonant Inelastic X-ray Scattering, XAS Short Course for Structural Molecular Biology Applications, Stanford Linear Accelerator Center, Menlo Park, CA, March 14, 2007

Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision, Café Scientifique, Silcon Valley, SRI International, Menlo Park, CA, February 13, 2007

Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision, Sonoma State University Public Lecture Series and Undergraduate Colloquium "What Physicists Do.", Rohnert Park, CA, February 12, 2007

Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision, Plenary Session at Agilent Technical Conference, San Francisco Airport Marriott, Burlingame, CA, February 2, 2007

Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision, Science Colloquium, Castilleja School, December 14, 2006

Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision, Fermilab Colloquium, Fermi National Accelerator Center, Batavia, IL, November 29, 2006

Archimedes Manuscript under X-ray Vision, Physics Seminar, San José State University, San José, CA, November 16, 2006

Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision, Physics Colloquium, Stanford University, Stanford, CA, October 17, 2006

Secrets in the Ancient Goatskin: Archimedes Manuscript under X-ray Vision, Menlo School, Atherton, CA, October 16, 2006

Secrets in the Ancient Goatskin: The Latest Results from the Archimedes X-ray Imaging Project at SSRL, SSRL Users' Meeting, Menlo Park, CA, October 12, 2006

Resonant and Non Resonant Inelastic X-ray Scattering, Joint ALS/SSRL User Meeting Workshop, Berkeley, CA, October 11, 2006

Archimedes Manuscript under X-ray Vision, SLAC Colloquium, Menlo Park, CA, September 25, 2006

Raman Spectroscopy in the Hard X-ray Region: From the Structure of Water to Photosynthetic Water Splitting, 20th International Conference on Raman Spectroscopy, Yokohama, Japan, August 21, 2006

Advances in X-ray Raman Spectroscopy in Resonant and Non-Resonant Applications, 66th Okazaki Conference "IWSXR" International Workshop on Soft X-ray Raman Spectroscopy and Related Phenomena, Okazaki, Japan, August 17, 2006

Advanced X-ray Spectroscopy and its Application to Water and 3d Metal Compounds, Stanford Environmental Molecular Science Institute 2nd Annual Meeting, Mitchell Bldg., Stanford, CA, August 7, 2006

Archimedes: Ancient Text Revealed with X-ray Vision, Stanford Summer Science Public Lecture Series, Cantor Art Center, Stanford, CA, August 3, 2006 (online viewing at http://academicearth.org/lectures/archimedes-ancient-text-uwe-bergmann)

X-ray Raman based Absorption Spectroscopy: Going Tough on Low Z Systems, 13th International Conference on X-ray Absorption Fine Structure, Stanford, CA, July 11, 2006

O-O RDF from EXAFS in Raman Mode, Stockholm Discussion Meeting, Structure and Molecular Scale Properties of Liquid Water, Stockholm, Sweden, June 15, 2006

The Second Generation of X-Ray Emission Instrumentation, Workshop at the NSLS/CFN Joint Users' Meeting on Chemical and Biological Applications of X-ray Emission Spectroscopy, Upton, NY, May 17th, 2006

Archimedes Manuscript under X-ray Vision, Social Event: Archimedes and the Universe at IEEE VTS'06 (24 VLSI Test Symposium), San Francisco Metreon, San Francisco, CA, May 2, 2006

Advanced X-Ray Spectroscopy and Water, Nilsson Collaborator Meeting, SSRL, Menlo Park, CA, February 28, 2006

Archimedes Manuscript under X-ray Vision, Physics Colloquium, Stony Brook University, Stony Brook, NY, February 7, 2006

X-ray Raman Spectroscopy and the Structure of Water from Ambient to Extreme Conditions, Warren Symposium of the Max-Planck Institute for Metal Research, Ringberg Castle, Tegernsee, Germany, January 23, 2006

Archimedes – Accelerator Reveals Ancient Text, SLAC Public Lecture, December 13, 2005
(online viewing at http://www2.slac.stanford.edu/lectures/default.asp?id=lecture_video&eventID=25)

Advances in X-ray Raman and Emission Spectroscopy, CHESS Journal Club, Cornell, Ithaca, NY, December 2, 2005

Archimedes Manuscript under X-ray Vision, 32nd Annual SSRL Users' Meeting, Menlo Park, CA, October 17, 2005

Application of Advanced Hard X-ray Spectroscopy and Inelastic Scattering to Catalysis, Workshop on Catalysis Research at the Advanced Photon Source, Argonne National Laboratory, Argonne, IL, September 12-13, 2005

Archimedes Manuscript under X-ray Vision, Lockheed Martin, Palo Alto Colloquia, Palo Alto, CA, September 8, 2005

Inelastic X-ray Scattering and Advanced Spectroscopy at SPEAR3, Seminar at Greven Group Meeting, McCullough Bldg. Stanford University, Stanford, CA, August 31, 2005

New Applications of Synchrotron Radiation: From A as in Archimedes to Z as in Zinc, Seminar at Max-Planck Institute for Metal Research, Stuttgart, Germany, July 22, 2005

Non-Resonant X-ray Raman Scattering – A Powerful New Tool to Study low Z Materials in Ambient and Extreme Conditions, Seminar at DELTA, Dortmund, July 20, 2005

X-Ray Raman Scattering – a Powerful New Tool to Study Light Element (Low Z) Systems, 5th International Discussion Meeting on Relaxations in Complex Systems New results, Directions and Opportunities – Lille, France, July 9, 2005

Wasser unter der Röntgenlupe – Ein Neuer Blick auf das rätselhafte Lebenselixir, 6. Highlight-Kongress of the `Deutsche Pharmazeutischen Gesellschaft' and the `Pharmazeutische Zeitung', Worms, Germany, June 11, 2005

Advanced X-ray Spectroscopy Techniques for SEMSI, Stanford Environmental Molecular Science Institute PI Meeting, Monterey, CA, October 23, 2004

Inelastic X-ray Scattering and Advanced Spectroscopy at SPEAR3, SSRL Users' Meeting, Menlo Park, CA, October 4, 2004

Non-resonant X-ray Raman scattering – a powerful new tool to study low Z materials in ambient and extreme conditions, Lawrence Livermore Laboratory, Seminar in High Pressure Physics Group, Livermore, CA, August 25, 2004

Recent Advances in Hard X-ray Inelastic Scattering with Medium Resolution, Workshop for NSLS-II: The Future National Synchrotron Light Source Brookhaven National Laboratory, Upton, NY, March 15, 2004

New X-ray Techniques to Study the OEC of Photosystem II, 314th WE-Heraeus-Seminar "Water Oxidation in Photosynthesis", Bad Honnef, Germany, November 23, 2003

Advances in High-Resolution Hard X-ray Spectroscopy: From Vibrational Studies to identify ligands to the Local Structure of Water, NSLS Workshop: BIO-MATTERS: From IR to X-rays, Upton, NY, May 21, 2003

X-ray Raman Spectroscopy - A New Tool to Study Local Structure of Aromatic Hydrocarbons and Asphaltenes, International Conference on Heavy Organics Depositions, HOD 2002, Puerto Vallarta, Jalisco, Mexico, November 17-21, 2002

Application of Novel Hard X-ray Spectroscopy to Transition Metal Systems,
Catalysis Workshop at SSRL, Menlo Park, CA, October 8-9, 2002

Applications of Resonant and Non-Resonant IXS to Bio-Materials and Condensed Matter,
Workshop Inelastic X-ray Scattering/High Energy - X-ray Photoemission Spectroscopy at Synchrotron SOLEIL, Paris, France, June 4-5, 2002

Inelastic X-ray Scattering and Electronic Excitations: New Spectroscopic Studies of Metalloproteins and Water, Seminar at European Synchrotron Radiation Facility, Grenoble, France, June, 2002

High-Resolution X-ray Spectroscopy on Biomaterials: Recent Results of X-ray Emission, RIXS and X-ray Raman Studies, International Conference on Inelastic X-ray Scattering, Haikko, Finland, August 22-26, 2001

Press Coverage (selected examples)

Publication 231 was chosen for the cover of the November 2023 edition of IUCrJ.

Publication 226, **Structural evidence for intermediates during O2 formation in photosystem II**, *Nature* **617**, 629–636 (2023) https://doi.org/10.1038/s41586-023-06038-z was featured in in a SLAC press release https://www6.slac.stanford.edu/news/2023-05-03-researchers-capture-elusive-missing-step-final-act-photosynthesis and subsequently in several news media outlets including, New Scientist (UK) https://www.newscientist.com/article/2371738-decades-old-mystery-about-photosynthesis-finally-solved/; The Register (UK) https://www.theregister.com/2023/05/04/photosynthesis/; US Today News https://ustoday.news/scientists-observe-an-elusive-missing-step-in-the-final-stages-of-photosynthesis/; La Nacion (Argentina) https://www.lanacion.com.ar/agencias/captan-por-primera-vez-el-paso-de-la-fotosintesis-que-crea-el-oxigeno-nid03052023/; Earth https://www.earth.com/news/scientists-have-finally-decoded-the-process-of-photosynthesis/; AZoCleanTech (UK/Australia) https://www.earth.com/news/scientists-have-finally-decoded-the-process-of-photosynthesis/; Informationsdienst Wissenschaft (Germany) https://nachrichten.idw-online.de/2023/05/04/die-grosse-freisetzung-des-sauerstoffs; Yahoo Life https://www.yahoo.com/lifestyle/scientists-observe-elusive-missing-step-in-photosynthesis-final-stage-214947146.html;

Our XRF imaging work on early metal type print was featured in several news media outlets including, The Mercury News (https://www.mercurynews.com/2022/07/25/stanford-linear-accelerator-probes-did-gutenberg-really-invent-printing/), NBC (https://www.nbcbayarea.com/news/local/south-bay/slac-machine-historic-documents/2959673/) and various online magazines, including Gizmodo (https://gizmodo.com/gutenberg-bible-historical-documents-x-ray-scans-slac-1849392210), CNET (https://www.cnet.com/science/the-particle-accelerator-experiment-that-could-rewrite-the-history-of-the-printing-press/) and Wired (https://www.wired.com/story/can-a-particle-accelerator-trace-the-origins-of-printing/).

Publication 218, **Disentangling the Chemistry of Australian Plant Exudates from a Unique Historical Collection**, *Proc Natl Acad Sci*, **119**, e2116021119 (2022) https://doi.org/10.1073/pnas.2116021119 was featured as an SSRL Highlight (https://www-ssrl.slac.stanford.edu/content/science/highlight/2022-06-13/powerful-x-rays-explore-molecular-composition-historical-collection) and SLAC News (https://www6.slac.stanford.edu/news/2022-05-26-researchers-aim-x-rays-century-old-plant-secretions-insight-aboriginal-australian) It was subsequently covered by some news outlets including: OI Canadian https://oicanadian.com/researchers-direct-x-rays-at-century-old-plant-secretions-to-better-understand-australias-aboriginal-cultural-heritage/; sciencesprings https://sciencesprings.wordpress.com/2022/05/29/from-the-does-slac-national-accelerator-laboratory-researchers-aim-x-rays-at-century-old-plant-secretions-for-insight-into-aboriginal-australian-cultural-heritage/

Publication 213 has been chosen by the editors at *Nature Communications* as an Editors' Highlights. It can be found on the webpage of recent research called "Structural biology, biochemistry and biophysics" and editor Karin Kuehnel chose to feature your article, entitled "Structural dynamics in the water and proton channels of photosystem II during the S2 to S3 transition". The webpage can be accessed at www.nature.com/collections/hhfigaahch and is linked prominently on our journal homepage (https://www.nature.com/ncomms/) and a dedicated Editors' Highlights page (https://www.nature.com/ncomms/editorshighlights). LBNL and SLAC also ran stories on the work, the SLAC story is at: https://www6.slac.stanford.edu/news/2021-11-16-bucket-brigades-and-proton-gates-researchers-shed-new-light-waters-role.

Publication 184 (**Pheomelanin pigment remnants mapped in fossils of extinct mammals**) was featured in a SLAC press release and received extensive press coverage including The New York Times https://www.nytimes.com/2019/05/23/science/fossil-colors-red.html and was also reported by CNN, Gizmodo, Engadget, Ars Technica, Smithsonian Magazine, KQED Science, UPI, Tech Times, Cosmos, CBS News, Science, Science News, and The Daily Mail. Press release reprinted by ScienceDaily and Phys.org.

Publication 179 (**Structures of the intermediates of Kok's photosynthetic water oxidation clock**) was featured in a SLAC press release and received wide media coverage including Gizmodo https://gizmodo.com/how-plants-produce-oxygen-revealed-by-tour-de-force-las-1830285550.

Publication 172 (**Ultrafast non-radiative dynamics of atomically thin $MoSe_2$**) was selected as a DOE highlight 'How to turn Light into Atomic Vibrations',
see: https://www.energy.gov/science/bes/articles/how-turn-light-atomic-vibrations

Publication 164 (**Structure of photosystem II and substrate binding at room temperature**) was featured in a SLAC press release https://www6.slac.stanford.edu/news/2016-11-21-new-detailed-snapshots-capture-photosynthesis-room-temperature.aspx, which was then featured in several news agencies. The R&D Magazine did an interview with me shown in http://www.rdmag.com/news/2016/12/scientists-catch-snapshot-photosynthesis

Publication 163 (**Elemental characterisation of melanin in feathers via synchrotron X-ray imaging and absorption spectroscopy)** got extensive press coverage around the world including the Daily Mail:
: http://www.dailymail.co.uk/sciencetech/article-3804007/Showing-true-colours-Chemical-clues-modern-birds-reveal-dinosaurs-REALLY-looked-like.html <http://www.dailymail.co.uk/sciencetech/article-3804007/Showing-true-colours-Chemical-clues-modern-birds-reveal-dinosaurs-REALLY-looked-like.html>. The article was also featured as the banner of the widely read website Popular Science <www.popsci.com> and gizmodo.com, see:
http://gizmodo.com/x-ray-images-of-bird-feathers-hold-the-secret-to-dinosa-1787199011

Publication 149 (**X-ray Emission Spectroscopy of Bulk Liquid Water in "No-man's Land"**) was selected as a 2015 Editors' Choice article. http://dx.doi.org/10.1063/1.4905603
The 2015 JCP Editors' Choice collection <http://aip-info.org/1ZJX-47T3U-J6DAZO-23KYDM-1/c.aspx> of 65 articles was hand-selected by the editors as the most innovative and influential articles of 2015. They are freely available to download through the end of 2016.

My invited public plenary talk to the Louvre (**X-ray Fluorescence Imaging: From Archimedes to Archaeopteryx and Beyond,** Synchrotron Radiation and Neutrons in Art and Archeology Conference, Invited Lecture in the Public Session, Musée du Louvre, Paris, September 10, 2014) was featured in the French Newspaper *Le Monde* on September 22, 2014 see: http://www.lemonde.fr/sciences/article/2014/09/22/des-photons-pour-reveler-les-uvres-d-art_4492192_1650684.html). Articles on both the Archaeopteryx and the Archimedes Palimpsest were featured in a series of art and science in in the French Newspaper *Le Monde* on August 8, 2015, see:
http://www.lemonde.fr/arts/article/2015/08/08/l-uvre-d-art-n-est-pas-celle-que-l-on-croit_4716980_1655012.html#meter_toastero and on August 17, 2015, see:
http://www.lemonde.fr/archeologie/article/2015/08/17/l-archeopteryx-retrouve-ses-plumes_4727983_1650751.html
X-ray imaging, in particular the Archimedes work was featured in 'The New Yorker' on November 9, 2015, see
http://www.newyorker.com/magazine/2015/11/16/the-invisible-library

The work on the Archaeopteryx feather (Publication 133) was featured in a SLAC press release (see http://www6.slac.stanford.edu/news/2013-06-11-dino-feather.aspx) which received wide international press coverage including the LA Times, National Geographic and the Huffington Post.

The work on the Cherubini Opera featured in Publication 121 was featured in a Stanford Press release (see http://www6.slac.stanford.edu/news/2013-06-10-SLAC-X-rays-Resurrect-200-year-old-Opera.aspx and https://www.dropbox.com/s/nup39m0t6re5av7/SSRL-Opera.m4v). It received extensive press coverage including NBC, BBC, National Geographic and countless newspapers from around the world.

Publication 113 (**Trace metals as biomarkers for Eumelanin Pigment in the Fossil Record**) has received extensive media coverage around the world including articles in the New York Times and at BBC. The publication was also chosen as one of the top 10 discoveries of the year 2011 by the French magazine "La Recherche".

Publication 104 (**Archaeopteryx feathers and bone chemistry fully revealed via synchrotron imaging**, *PNAS*, **107,** (20) 9060-9065 (2010)) has received worldwide press coverage including BBC News, New Scientist and The Hindu. It is also featured in a six part series of National Geographic which is aired worldwide starting in February 2011 and in the US in the fall of 2011. Three examples of the numerous links links:
BBC News (Science & Environment) http://www.bbc.co.uk/news/10106530
SPIEGEL online (http://www.spiegel.de/wissenschaft/natur/0,1518,694170,00.html)

http://www.ivanhoe.com/science/story/2011/02/822a.html (short video on Archimedes and Archaeopteryx work)
http://www.soci.org/Chemistry-and-Industry/CnI-Data/2012/10/Chemical-ghosts

Publication 86 (Pushkar, et al. *JBC*, 282, 7198, 2007) was the cover article and chosen as paper of the week by the Journal of Biological Chemistry.

Publication 57 (Wernet et al, Science, 304, 995, 2004) was featured in numerous Journals and Magazines around the world. Most notably it was chosen by Science Magazine as one of the top ten breakthroughs of the year 2004 (Science, 306, 2013-2017, 2004).

Publication 54 (Bergmann et al, JACS, 125, 4016, 2003) was featured in the Highlight Report 2004 of the Advanced Photon Source.

Publication 31 (Bergmann et al**,** JACS, 121, 4926, 1999) was featured in the news of the week in the publication of the American Chemical Society 'Chemical and Engineering News', on May 24, 1999.

The original Archimedes project (see also publications 88, 92, 115, 116) received an enormous amount of national and international press coverage. First, after the initial results in May 2005 and then again after the third experimental run in August 2006. The coverage was continuing for several years. Both magazines Nature (News@Nature May 16, 2005, and Nature, 435, 257, 2005) and Science (Science, 313, 744, 2006) have reported on the project, as well as many leading news journals as well as TV and radio news stations in the United States and around the world. On August 2, 2006, the Archimedes x-ray project was the most e-mailed news story on the BBC News website. On August 3, it was listed as the most popular story of the previous five days. A small list of the 2006 press coverage as compiled on August 11 by Brad Plummer from SLAC communications follows:

ARCHIMEDES at SLAC

PRESS SUMMARY as of 8/11/06

The Archimedes experiment at SSRL has attracted worldwide interest, generating extensive press coverage. What follows is a collection of links tracked by the SLAC communications group that were found by 8/11/06 – there were countless more.

TELEVISION:

ABC News: http://abclocal.go.com/kgo/story?section=local&id=4426310 (Nationwide)
Fox News: http://www.ktvu.com/video/9620190/index.html
NBC News: http://www.nbc11.com/news/4532852/detail.html (text only)
CBC
Reuters TV
History Channel

RADIO:

NPR: http://www.npr.org/templates/story/story.php?storyId=5583668
KESQ News: http://www.kesq.com/Global/story.asp?S=5242922&nav=9qrx
WBBM 780 http://www.wbbm780.com/pages/64747.php

INTERNATIONAL PRESS:

X-rays Reveal Archimedes Secrets*, Jonathan Fildes, *BBC News
http://news.bbc.co.uk/2/hi/science/nature/5235894.stm

This story was the most popular story on the BBC site, on Thursday it was listed as the most popular story of the past five days – though only live for two days.

Eureka! Ancient Works by Archimedes Rediscovered*, Geneviève Roberts, *The Independent
http://news.independent.co.uk/europe/article1211357.ece

Also published in the following:
Irish Independent http://www.unison.ie/irish_independent/stories.php3?ca=27&si=1664165&issue_id=14442
Unison.ie: http://www.unison.ie/stories.php3?ca=27&si=1664165

Eureka! X-ray Vision Helps Decipher Archimedes's Words of Wisdom*, Roger Highfield, *The Daily Telegraph
http://www.telegraph.co.uk/news/main.jhtml?xml=/news/2006/08/03/warchi03.xml
Also published in the New York Sun: http://www.nysun.com/article/37237

X-Rays Illuminate Archimedes Writings, United Press International
http://www.upi.com/NewsTrack/view.php?StoryID=20060803-022947-3612r

Though headquartered in the US, UPI's article was found at the following international sites:

DailyIndia.com: http://www.dailyindia.com/show/48286.php/X-rays-illuminate-Archimedes-writings,
http://www.dailyindia.com/show/48303.php/UPI-NewsTrack-Health-and-Science-News
North Korea Times: http://story.northkoreatimes.com/p.x/ct/9/cid/dd8845aa60952db2/id/6b975c4a68934a02/

In addition, it can be found here:

Monsters and Critics (US):
http://science.monstersandcritics.com/news/article_1186808.php/Health_and_Science_News_Roundup
Political Gateway (US): http://www.politicalgateway.com/news/read/28466
St. Tammany.com: http://www.sttammany.com/news-detail/article/564/upi-newstrac-4ae22ea538.html

Rayos X para Arquímedes*, Helena Cebrian, *El Pais
http://www.elpais.es/articulo/sociedad/Rayos/X/Arquimedes/elpporsoc/20060730elpepisoc_8/Tes/

***El Mundo* link to follow.**

LOCAL/NATIONAL PRESS:

Terence Chea's article for the Associated Press was published last Friday to a variety of national and international news sources:

National

USA Today: http://www.usatoday.com/news/nation/2006-08-04-manuscript_x.htm
ABC News http://abcnews.go.com/Technology/wireStory?id=2276486 ,
http://abcnews.go.com/Technology/wireStory?id=2276207 ,
http://abcnews.go.com/Technology/wireStory?id=2275871
Salon.com: http://www.salon.com/wire/ap/archive.html?wire=D8JA3LE80.html
CBS News: http://www.cbsnews.com/stories/2006/08/05/ap/tech/mainD8J9VSVG3.shtml
Fox News: http://www.foxnews.com/story/0,2933,207292,00.html
KLTV ABC7: http://www.kltv.com/Global/story.asp?S=5249125
KESQ News: http://www.kesq.com/Global/story.asp?S=5242922&nav=9qrx
WBBM 780 http://www.wbbm780.com/pages/64747.php

Yahoo News: http://news.yahoo.com/s/ap/20060805/ap_on_sc/archimedes_manuscript
AOL News: http://articles.news.aol.com/news/_a/particle-acceleratorreveals-archimedes/20060804231409990001?cid=2194
MSNBC: http://www.msnbc.msn.com/id/14226275/
Discovery Channel: http://reports.discoverychannel.ca/servlet/an/discovery/1/20060808/discovery_archimedes_060808/20060808?hub=DiscoveryReport
Washington Post: http://www.washingtonpost.com/wp-dyn/content/article/2006/08/04/AR2006080401468.html
Wired News: http://www.wired.com/news/wireservice/0,71546-0.html?tw=wn_culture_1
The Examiner: http://www.examiner.com/a-205125~Beams_Reveal_Archimedes__Hidden_Writings.html
Forbes: http://www.forbes.com/business/energy/feeds/ap/2006/08/04/ap2929089.htmlSilicon Valley.com: http://www.siliconvalley.com/mld/siliconvalley/news/15202438.htm
San Jose Mercury News: http://www.mercurynews.com/mld/mercurynews/news/15202438.htm
Monterey County Herald: http://www.montereyherald.com/mld/montereyherald/news/15202397.htm
Pioneer Press: http://www.twincities.com/mld/twincities/news/breaking_news/15202438.htm
Contra Costa Times: http://www.contracostatimes.com/mld/cctimes/news/state/15202397.htm
Mercury News: http://www.mercurynews.com/mld/mercurynews/news/local/states/california/northern_california/15202397.htm
The Desert Sun: http://www.thedesertsun.com/apps/pbcs.dll/article?AID=/20060805/NEWS10/608050325/1024
Live Science: http://www.livescience.com/history/ap_060805_arch_text.html
The State: http://www.thestate.com/mld/thestate/news/nation/15202438.htm
San Diego Union Tribune: http://www.signonsandiego.com/news/state/20060804-1819-ca-archimedesmanuscript.html
Kansas.com: http://www.kansas.com/mld/kansas/news/15202438.htm
Grand Forks Herald: http://www.grandforks.com/mld/grandforks/15202438.htm
Macon Telegraph: http://www.macon.com/mld/macon/15202438.htm
Toronto Sun: http://torontosun.com/News/World/2006/08/06/1721503-sun.html
Chicago Tribune: http://www.chicagotribune.com/news/nationworld/chi-0608070191aug07,1,147117.story?coll=chi-newsnationworld-hed
Wyoming News: http://www.casperstartribune.net/articles/2006/08/07/ap/science/d8ja3le80.txt
Albuquerque Tribune: http://www.abqtrib.com/albq/nw_science/article/0,2668,ALBQ_21236_4899731,00.html
Houston Chronicle: http://www.chron.com/disp/story.mpl/nation/4103703.html
Daily News.com: http://www.dailynews.com/news/ci_4138566
San Luis Obispo Tribune: http://www.sanluisobispo.com/mld/sanluisobispo/15202397.htm
Tribune Star: http://www.tribstar.com/news/feeds/apcontent/apstories/apstorysection/D8J9V9QO1.xml.txt/resources_apstoryview
Midwest City Sun: http://www.mwcsun.com/feeds/apcontent/apstories/apstorysection/D8J9V9QO1.xml.txt/resources_apstoryview
The Tribune-Democrat: http://www.tribune-democrat.com/feeds/apcontent/apstories/apstorysection/D8J9V9QO1.xml.txt/resources_apstoryview
The Ledger: http://www.theledger.com/apps/pbcs.dll/article?AID=/20060804/APA/608040969
Town Hall: http://www.townhall.com/News/NewsArticle.aspx?contentGUID=a1b23d84-a8b0-4dd6-a99e-c8657d6951b8&page=full&comments=true
The Norman Transcript: http://www.normantranscript.com/feeds/apcontent/apstories/apstorysection/D8J9V9QO1.xml.txt/resources_apstoryview
Seattle Times: http://seattletimes.nwsource.com/html/nationworld/2003178643_script06.html
Seattle Post Intelligencer: http://seattlepi.nwsource.com/national/1501AP_Archimedes_Manuscript.html
Chron.com: http://www.chron.com/disp/story.mpl/ap/science/4095917.html
Bradenton Herald: http://www.bradenton.com/mld/bradenton/news/breaking_news/15202438.htm
Centre Times Daily: http://www.centredaily.com/mld/centredaily/news/15202438.htm
Biloxi Sun Herald: http://www.sunherald.com/mld/sunherald/15202438.htm
Newsday: http://www.newsday.com/news/science/wire/sns-ap-archimedes-manuscript,0,5175576.story?coll=sns-ap-science-headlines
Times Leader: http://www.timesleader.com/mld/timesleader/news/15202438.htm
The Charlotte Observor: http://www.charlotte.com/mld/charlotte/15202438.htm

Ledger-Enquirer: http://www.ledger-enquirer.com/mld/ledgerenquirer/15202438.htm
Star-Telegram: http://www.dfw.com/mld/dfw/news/breaking_news/15202438.htm
Kansas City Star: http://www.kansascity.com/mld/kansascity/15202438.htm
Fort Wayne News Sentinel: http://www.fortwayne.com/mld/newssentinel/news/local/15202438.htm
Fort Wayne Journal Gazette: http://www.fortwayne.com/mld/journalgazette/15202438.htm
Belleville News Democrat: http://www.belleville.com/mld/belleville/news/breaking_news/15202438.htm

International

Taipei Times: http://www.taipeitimes.com/News/world/archives/2006/08/06/2003322064
Zante Web (UK): http://www.zanteweb.co.uk/zante-greece-news/250/greece-x-rays-reveal-defaced-genius-of-archimedes.php
Turkish Daily News: http://www.turkishdailynews.com.tr/article.php?enewsid=50850
The China Post: http://www.chinapost.com.tw/i_latestdetail.asp?id=40156
CTV.ca:
http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20060805/archimedes_060805/20060805?hub=SciTech
Canada East.com: http://www.canadaeast.com/cp/science/article.php?articleID=30324
Gulf Daily News (Bahrain): http://www.gulf-daily-news.com/Story.asp?Article=151816&Sn=WORL&IssueID=29139
FAZ-Frankfurter Allgemeine:
http://www.faz.net/s/Rub163D8A6908014952B0FB3DB178F372D4/Doc~EC57157EDF531409A9007948CC13CD9F7~ATpl~Ecommon~Scontent.html
News24.com (South Africa): http://www.news24.com/News24/Technology/News/0,,2-13-1443_1978530,00.html

Prayer Book Reveals Secrets,* Ian Hoffman, *San Mateo County Times
http://www.insidebayarea.com/sanmateocountytimes/localnews/ci_4124688

The article can also be found here:

Mercury Register: http://www.orovillemr.com/news/bayarea/ci_4124752
Inside Bay Area: http://www.insidebayarea.com/localnews/ci_4124752,
http://www.insidebayarea.com/argus/localnews/ci_4135503
Oakland Tribune: http://www.insidebayarea.com/oaklandtribune/ci_4124752
Alameda Times Star: http://www.insidebayarea.com/timesstar/ci_4124752

Revealing Secrets of Archimedes*, Lisa Krieger, *San Jose Mercury News
http://www.mercurynews.com/mld/mercurynews/living/15187435.htm
The article was the top feature on the *Mercury News* home page, the top story on the online News page and was the front cover story of the Peninsula section of the *San Jose Mercury's* print edition.

The article can be found on the following sites:

Silicon Valley: http://www.siliconvalley.com/mld/siliconvalley/news/15188980.htm
Kentucky.com: http://www.kentucky.com/mld/kentucky/news/nation/15190137.htm
The State (SC): http://www.thestate.com/mld/thestate/news/nation/15190137.htm
Monterey County Herald: http://www.montereyherald.com/mld/montereyherald/news/nation/15190137.htm
Pioneer Press: http://www.twincities.com/mld/twincities/news/15190137.htm
Biloxi Sun Herald: http://www.sunherald.com/mld/sunherald/news/nation/15190137.htm
Grand Forks Herald: http://www.grandforks.com/mld/grandforks/news/nation/15190137.htm
Myrtle Beach Sun News: http://www.myrtlebeachonline.com/mld/myrtlebeachonline/news/nation/15190137.htm
Macon Telegraph: http://www.macon.com/mld/macon/news/nation/15190137.htm
Bradenton Herald: http://www.bradenton.com/mld/bradenton/news/nation/15190137.htm
Belleville News – Democrat: http://www.belleville.com/mld/belleville/news/nation/15190137.htm
Duluth News Tribune: http://www.duluthsuperior.com/mld/duluthsuperior/news/nation/15190137.htm
Columbus Ledger-Enquirer: http://www.ledger-enquirer.com/mld/ledgerenquirer/news/nation/15190137.htm

Kansas City Star: http://www.kansascity.com/mld/kansascity/news/nation/15190137.htm
San Luis Obispo Times: http://www.sanluisobispo.com/mld/sanluisobispo/news/nation/15190137.htm
Contra Costa Times: http://www.contracostatimes.com/mld/cctimes/news/nation/15190137.htm
Centre Daily Times: http://www.centredaily.com/mld/centredaily/news/nation/15190137.htm
Charlotte Observer: http://www.charlotte.com/mld/charlotte/news/nation/15190137.htm
Twin Cities: http://www.twincities.com/mld/twincities/business/technology/15188980.htm

This week, it was (re)published to these sites:

News Tribune: http://www.thenewstribune.com/24hour/healthscience/story/3346437p-12321876c.html
Monterey Herald: http://www.montereyherald.com/mld/montereyherald/news/nation/15224167.htm
Bradenton Herald: http://www.bradenton.com/mld/bradenton/news/nation/15224167.htm
Duluth News Tribune: http://www.duluthsuperior.com/mld/duluthsuperior/news/nation/15224167.htm
Macon Telegraph: http://www.macon.com/mld/macon/news/nation/15224167.htm
Kansas City Star: http://www.kansascity.com/mld/kansascity/news/nation/15224167.htm
Contra Costa Times: http://www.contracostatimes.com/mld/cctimes/news/nation/15224167.htm
Centre Daily Times: http://www.centredaily.com/mld/centredaily/news/nation/15224167.htm
Myrtle Beach Sun: http://www.myrtlebeachonline.com/mld/myrtlebeachonline/news/nation/15224167.htm
Belleville News Democrat: http://www.belleville.com/mld/belleville/news/nation/15224167.htm
Columbus Ledger Enquirer: http://www.ledger-enquirer.com/mld/ledgerenquirer/news/nation/15224167.htm
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Jennifer Viegas' article *Archi**medes Text Revealed by X-ray*** was posted on the ***Discovery Channel***'s News website August 4. To view the full text, follow this link:
http://dsc.discovery.com/news/2006/08/04/archimedes_his.html?category=history&guid=20060804140030.
The article also appeared on ***ABC*** (Australia) at http://www.abc.net.au/science/news/stories/s1707926.htm.

Robert Service's article for ***Science*** magazine's News of the Week section on SSRL's Archimedes research was published in the August 11 issue of the publication. http://www.sciencemag.org/cgi/content/full/313/5788/744

SLAC's Bradley Plummer wrote an extensive feature on the Archimedes experiment at SSRL which was published on the front cover of the ***Stanford Report*** which was published August 10. To view the article, please click the following link: http://news-service.stanford.edu/news/2006/august9/arch-080906.html.