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- EDUCATION** **Arizona State University**, Tempe, Arizona, U.S.A.
Ph.D. Physics **Aug. 2011**
 X-ray protein nanocrystallography and correlated fluctuation SAXS. Advisor: John C. H. Spence
- University of California, Berkeley**, Berkeley, California, U.S.A.
B.A. Astronomy & B.A. Physics **Aug. 2006**
- EXPERIENCE** **Arizona State University**, Tempe, Arizona, U.S.A.
Assistant Professor of Physics **Aug. 2014 – present**
 Development of novel instrumentation and data analysis methods for imaging bioparticles with x-ray free-electron lasers and synchrotron sources.
- Deutsches Elektronen Synchrotron**, Hamburg, Germany
Post-doctoral Researcher **Feb. 2012 – Aug. 2014**
 Development of novel instrumentation and data analysis methods for imaging bioparticles with x-ray free-electron lasers and synchrotron sources. Advisor: Henry N. Chapman.
- Arizona State University**, Tempe, Arizona, U.S.A.
Post-doctoral Researcher **Aug. 2011 – Nov. 2011**
Graduate Research Associate **Aug. 2009 – Aug. 2011**
Graduate Research Fellow (Science Foundation of Arizona) **Aug. 2007 – Aug. 2009**
 Development of serial femtosecond crystallography and correlated X-ray solution scattering. Ph.D. advisor: John C. H. Spence. Post-doctoral advisor: Petra Fromme.
- Lawrence Berkeley National Laboratory**, Berkeley, California, U.S.A.
Post-Baccalaureate Fellow **Jul. 2006 – Jul. 2007**
 Assembly and commissioning of beamline 7.3.3 (small-angle X-ray scattering) at the ALS synchrotron facility. Supervisors: Dr. Alex Hexemer and Dr. Howard Padmore.
- University of California, Berkeley**, Berkeley, California, U.S.A.
Undergraduate Research Assistant **Summer 2006**
 Temperature/luminosity classification of infrared spectra from supergiant stars. Supervisor: Prof. James R. Graham.
- California Institute of Technology**, Pasadena, California, U.S.A.
Summer Student (Research Experiences for Undergraduates program) **Summer 2005**
 Optical sensors for the measurement of non-thermal noise in the Laser Interferometer Gravitational-wave Observatory. Supervisor: Prof. Eric D. Black.

h-index 30, citations 5675 (Google Scholar, December 11, 2017)

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- [2] Oberthuer, D., Knoška, J., Wiedorn, M.O., Beyerlein, K.R., Bushnell, D.A., Kovaleva, E.G., Heymann, M., Gumprecht, L., **Kirian**, R.A., Barty, A., Mariani, V., Tolstikova, A., Adriano, L., Awel, S., Barthelmess, M., Dörner, K., Xavier, P.L., Yefanov, O., James, D.R., Nelson, G., Wang, D., Calvey, G., Chen, Y., Schmidt, A., Szczepek, M., Frielingsdorf, S., Lenz, O., Snell, E., Robinson, P.J., Šarler, B., Belšak, G., Maček, M., Wilde, F., Aquila, A., Boutet, S., Liang, M., Hunter, M.S., Scheerer, P., Lipscomb, J.D., Weierstall, U., Kornberg, R.D., Spence, J.C.H., Pollack, L., Chapman, H.N., and Bajt, S. “Double-flow focused liquid injector for efficient serial femtosecond crystallography.” *Scientific Reports*, 7:44628 (**March 2017**)
- [3] Reddy, H.K.N., Yoon, C.H., Aquila, A., Awel, S., Ayyer, K., Barty, A., Berntsen, P., Bielecki, J., Bobkov, S., Bucher, M., Carini, G.A., Carron, S., Chapman, H., Daurer, B., DeMirici, H., Ekeberg, T., Fromme, P., Hajdu, J., Hanke, M.F., Hart, P., Hogue, B.G., Hosseinizadeh, A., Kim, Y., **Kirian**, R.A., Kurta, R.P., Larsson, D.S.D., Duane Loh, N., Maia, F.R.N.C., Mancuso, A.P., Mühligh, K., Munke, A., Nam, D., Nettelblad, C., Ourmazd, A., Rose, M., Schwander, P., Seibert, M., Sellberg, J.A., Song, C., Spence, J.C.H., Svenda, M., van der Schot, G., Vartanyants, I.A., Williams, G.J., and Xavier, P.L. “Coherent soft X-ray diffraction imaging of coliphage PR772 at the Linac coherent light source.” *Scientific Data*, 4:170079 (**June 2017**)
- [4] Wiedorn, M.O., Awel, S., Morgan, A.J., Barthelmess, M., Bean, R., Beyerlein, K.R., Chavas, L.M.G., Eckerskorn, N., Fleckenstein, H., Heymann, M., Horke, D.A., Knoška, J., Mariani, V., Oberthür, D., Roth, N., Yefanov, O., Barty, A., Bajt, S., Küpper, J., Rode, A.V., **Kirian**, R.A., and Chapman, H.N. “Post-sample aperture for low background diffraction experiments at X-ray free-electron lasers.” *Journal Of Synchrotron Radiation*, 24(6):1 (**November 2017**)
- [5] Awel, S., **Kirian**, R.A., Eckerskorn, N., Wiedorn, M., Horke, D.A., Rode, A.V., Küpper, J., and Chapman, H.N. “Visualizing aerosol-particle injection for diffractive-imaging experiments.” *Optics express*, 24(6):6507 (**March 2016**).
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- [8] Munke, A., Andreasson, J., Aquila, A., Awel, S., Ayyer, K., Barty, A., Bean, R.J., Berntsen, P., Bielecki, J., Boutet, S., Bucher, M., Chapman, H.N., Daurer, B.J., DeMirici, H., Elser, V., Fromme, P., Hajdu, J., Hantke, M.F., Higashiura, A., Hogue, B.G., Hosseinizadeh, A., Kim, Y., **Kirian**, R.A., Reddy, H.K.N., Lan, T.Y., Larsson, D.S.D., Liu, H., Loh, N.D., Maia, F.R.N.C., Mancuso, A.P., Mühligh, K., Nakagawa, A., Nam, D., Nelson, G., Nettelblad, C., Okamoto, K., Ourmazd, A., Rose, M., van der Schot, G., Schwander, P., Seibert, M.M., Sellberg, J.A., Sierra, R.G., Song, C., Svenda, M., Timneanu, N., Vartanyants, I.A., Westphal, D., Wiedorn, M.O., Williams, G.J., Xavier, P.L., Yoon, C.H., and Zook, J. “Coherent diffraction of single Rice Dwarf virus particles using hard X-rays at the Linac Coherent Light Source.” *Scientific Data*, 3:160064 (**August 2016**)

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- [10] van der Schot, G., Svenda, M., Maia, F.R.N.C., Hantke, M.F., DePonte, D.P., Seibert, M.M., Aquila, A., Schulz, J., **Kirian**, R.A., Liang, M., Stellato, F., Bari, S., Iwan, B., Andreasson, J., Timneanu, N., Bielecki, J., Westphal, D., de Almeida, F.N., Odic, D., Hasse, D., Carlsson, G.H., Larsson, D.S.D., Barty, A., Martin, A.V., Schorb, S., Bostedt, C., Bozek, J.D., Carron, S., Ferguson, K., Rolles, D., Rudenko, A., Epp, S.W., Foucar, L., Rudek, B., Erk, B., Hartmann, R., Kimmel, N., Holl, P., Englert, L., Loh, N.D., Chapman, H.N., Andersson, I., Hajdu, J., and Ekeberg, T. “Data Descriptor: Open data set of live cyanobacterial cells imaged using an X-ray laser.” *Scientific Data*, 3:1 (**August 2016**).
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- [21] Hantke, M.F., Hasse, D., Maia, F.R.N.C., Ekeberg, T., John, K., Svenda, M., Loh, N.D., Martin, A.V., Timneanu, N., Larsson, D.S.D., van der Schot, G., Carlsson, G.H., Ingelman, M., Andreasson, J., Westphal, D., Liang, M., Stellato, F., DePonte, D.P., Hartmann, R., Kimmel, N., **Kirian**, R.A., Seibert, M.M., Mühlig, K., Schorb, S., Ferguson, K., Bostedt, C., Carron, S., Bozek, J.D., Rolles, D., Rudenko, A., Epp, S., Chapman, H.N., Barty, A., Hajdu, J., and Andersson, I. “High-throughput imaging of heterogeneous cell organelles with an X-ray laser.” *Nature Photonics*, pages 1–7 (**November 2014**).
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BOOK
CHAPTERS

- [1] **Kirian**, R.A. and Chapman, H.N. *Imaging of Objects by Coherent Diffraction of X-Ray Free-Electron Laser Pulses*, pages 1–55. Springer International Publishing, Cham (**december 2014**). ISBN 978-3-319-04507-8

PROCEEDINGS

- [1] Nanni, E., Graves, W., **Kirian**, R., Li, R., Limborg, C., Shen, X., Spence, J., Weathersby, S., and Weierstall, U. “Measurements of Transmitted Electron Beam Extinction through Si Crystal Membranes.” In “Proceedings, 7th International Particle Accelerator Conference (IPAC 2016),” page TUPMY030 (**May 2016**).
- [2] Chen, J.P.J., **Kirian**, R.A., Beyerlein, K.R., Bean, R.J., Morgan, A.J., Yefanov, O.M., Arnal, R.D., Wojtas, D.H., Bones, P.J., Chapman, H.N., Spence, J.C.H., and Millane, R.P. “Image reconstruction in serial femtosecond nanocrystallography using x-ray free-electron lasers.” (**2015**)

RESEARCH
PRESENTATIONS

Invited talks are indicated with a double asterisk **

“Development of a photophoretic optical guide for femtosecond x-ray diffractive imaging of aerosolized nanoparticles”

SPIE Optical Trapping and Optical Micromanipulation XIII

San Diego, California.

Aug. 2016

- **“Methods for imaging biomolecules at XFEL facilities, with and without crystals”
Probing Dynamic Processes in Soft Materials Using Advanced Light Sources
Santa Fe, New Mexico. Jul. 2016
- **“Aerosol injectors for FEL diffraction measurements”
EuroXFEL workshop on sample environments for biology at XFELs.
Hamburg, Germany. Jan. 2016
- **“Strategies for injecting aerosolized particles into an XFEL beam”
3rd Annual BioXFEL Conference.
San Juan, Puerto Rico. Jan. 2016
- **“Aerosol injectors: lessons learned and potential improvements.”
LCLS User’s Workshop.
Menlo Park, California. Oct. 2015
- “Toward steering a jet of particles into an x-ray beam with optical forces.”
SPIE Optical Trapping and Optical Micromanipulation XII.
San Diego, California. Aug. 2015
- **“Imaging particles through diffraction intensity correlations.”
LCLS-II Scientific Opportunities Workshop.
Menlo Park, California. Feb. 2015
- **“Aerosol injectors for single-particle diffraction experiments.”
1st Ringberg Workshop on Structural Biology with FELs.
Kreuth, Germany. Feb. 2015
- **“Improving Aerosol Injectors for Single-Particle Diffractive Imaging.”
BioXFEL STC 2nd Annual International Conference.
San Juan, Puerto Rico. Jan. 2015
- **“Phasing coherently illuminated nanocrystals.”
1st Ringberg Workshop on Structural Biology with FELs.
Kreuth, Germany. Feb. 2014
- **“Methods for phasing coherently illuminated nanocrystals.”
Meeting of the Royal Society: X-ray lasers in biology - techniques.
Chicheley, UK Oct. 2013
- **“Methods for phasing coherently illuminated nanocrystals.”
The 28th Meeting of the European Crystallographic Association.
Warwick, UK Aug. 2013
- **“Ab initio imaging from correlated fluctuations in X-ray scattering”
Sixth Coherence Workshop.
Fukuoka, Japan June 2012
- **“Signal, noise and resolution in correlated fluctuations from snapshot SAXS”
Meeting of the American Crystallographic Association.
New Orleans, Louisiana. May 2011
- **“Snapshot SAXS for *ab initio* imaging from spatial correlations”
BioFEL Workshop.
Berkeley, California. Feb. 2011

	**“Femtosecond protein nanocrystallography at the LCLS” <i>6th Future Light Source Workshop 2010: Science and Technology.</i> Pohang, South Korea.	Nov. 2010
	**“Pump-probe electron gas diffraction - reconstruction of one molecule from many” <i>Microscopy and Microanalysis Meeting.</i> Portland, Oregon.	Aug. 2010
	**“Femtosecond protein nanocrystallography at the LCLS” <i>Ultrafast VUV and X-ray science meeting.</i> Menlo Park, California.	July 2010
	“Overcoming radiation damage limits in single-particle diffractive imaging with a free-electron laser” <i>Arizona Biophest Meeting</i> Tempe, Arizona.	July 2009.
INVITED LECTURES	“Methods for imaging non-crystalline targets with x-ray free-electron lasers.” <i>PIER Graduate Week: Serial Crystallography and Imaging Methods at FELs and Synchrotrons.</i> Hamburg, Germany.	Oct. 2014
	“Searching for structural insights through correlated scattering intensities.” <i>RACIRI Summer School: Imaging with X-Rays and Neutrons in Life and Materials Sciences.</i> Stockholm, Sweden.	Sep. 2014
MERIT-BASED AWARDS	Fonda-Fasella prize; Elettra Sincrotrone Trieste, Italy	2015
	Scientific Foundation of Arizona Graduate Research Fellowship	2007–2009
	Summer Graduate Student Research Fellowship, A.S.U. Physics Department	2009
	National Science Foundation Graduate Fellowship Honorable Mention	2010
	ARCS Foundation Scholarship, A.S.U. Physics Department	2009–2011
	Department Citation, U.C. Berkeley Astronomy Department	2005–2006
	Daniel Edward Wark Scholarship, U.C. Berkeley Astronomy Department	2005–2006
	Olsen Scholarship, U.C. Berkeley Physics Department	2005–2006
TEACHING	PHY310: Classical Particles, Fields, and Matter I	Fall 2015
	PHY311: Classical Particles, Fields, and Matter II	Spring 2016
	PHY310: Classical Particles, Fields, and Matter I	Fall 2016
	PHY311: Classical Particles, Fields, and Matter II	Spring 2017