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Education:

University of California, Berkeley: Ph.D. in Physical Chemistry, 2004.
Thesis title: New materials for nanocrystal solar cells
Advisor: A. Paul Alivisatos
Princeton University: A.B., *summa cum laude*, in Chemistry, Certificate in Materials Science and Engineering, 1999.
Thesis title: Charge injection and chemistry at the indium tin oxide-organic interface
Advisors: Jeffrey Schwartz, Antoine Kahn

Positions Held:

2017 – : Professor, Department of Chemical Engineering, University of Texas at Austin
2017 – : Henry Beckman Professorship in Chemical Engineering, University of Texas at Austin
2017 – : Fellow of the Dick Rothwell Endowed Chair, University of Texas at Austin
2016 – : Fellow of the Frank A. Liddell, Jr. Centennial Fellowship, University of Texas at Austin
2014 – 2017: Fellow of the Henry Beckman Professorship, University of Texas at Austin
2013 – 2017: Associate Professor, Department of Chemical Engineering, University of Texas at Austin
2008 – 2014: Staff Scientist, Materials Sciences Division, LBNL, Berkeley, California
2005 – 2008: Research Staff Member, IBM Almaden Research Center, San Jose, California
2004 – 2005: Postdoctoral Researcher, IBM Watson Research Center, Yorktown Heights, New York

Administrative Appointments:

2012 – 2013: Deputy Director, Molecular Foundry, LBNL
2008 – 2012: Director, Inorganic Nanostructures Facility, Molecular Foundry, LBNL

Journal Publications:

*Contact author(s) are marked with *.*

107) EL Runnerstrom, GK Ong, G Gregori*, J Maier, DJ Milliron*, “Colloidal Nanocrystal Films Reveal the Mechanism for Intermediate Temperature Proton Conductivity in Porous Ceramics,” *J. Phys. Chem. C* (2018), doi: 10.1021/acs.jpcc.7b12824.

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Faceted Metal Oxide Nanocrystals," *Nano Lett.* **17** (2017), 2611-2620. http://pubs.acs.org/doi/abs/10.1021/acs.nanolett.7b00404

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100) N DeForest*, A Shehabi, S Selkowitz, DJ Milliron, "A Comparative Energy Analysis of Three Electrochromic Glazing Technologies in Commercial and Residential Buildings," *Appl. Energy* **192** (2017), 95-109. http://www.sciencedirect.com/science/article/pii/S0306261917301216

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Narrow mid-Infrared Plasmon Linewidths of Single Metal Oxide Nanocrystals," *Nature Comm.* **7** (2016), 11583. http://www.nature.com/ncomms/2016/160513/ncomms11583/full/ncomms11583.html

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4) JP Chen, G Klaerner, JI Lee, D Markiewicz, VY Lee, RD Miller, JC Scott*, “Efficient, blue light–emitting diodes using crosslinked layers of polymeric arylamine and fluorene,” *Synth. Met.* **107** (1999), 129.

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Editorial & Commentary:

4) DJ Milliron*, “Ultraviolet Photovoltaics: Share the Spectrum,” *Nat. Energy* **2** (2017), 17116. https://www.nature.com/articles/nenergy2017116

3) BA Helms*, TE Williams, R Buonsanti, DJ Milliron, “Colloidal Nanocrystal Frameworks,” *Adv. Mater.* **27** (2015), 5820-5829. http://dx.doi.org/10.1002/adma.201500127

2) DJ Milliron*, “Quantum Dot Solar Cells: The Surface Plays a Core Role,” *Nat. Mater.* **13** (2014), 772-773. http://www.nature.com/nmat/journal/v13/n8/full/nmat4032.html

1) B Dubertret, J Hollingsworth, H Liu, D Milliron, J Owen, E Weiss, WE Buhro, F Caruso, SM Kauzlarich, M Ward, “Preface to the *Chemistry of Materials* Special Issue: Synthetic and Mechanistic Advances in Nanocrystal Growth,” *Chem. Mater.* **25** (2013), 1153-1154. http://pubs.acs.org/doi/abs/10.1021/cm4008359

Book Chapters:

3) A Llordes, EL Runnerstrom, SD Lounis, DJ Milliron, “Plasmonic electrochromism of metal oxide nanocrystals,” in *Electrochromic Materials and Devices*, RJ Mortimer, DR Rosseinsky and PMS Monk, Eds. Wiley, 2015.

2) JJ Urban, DJ Milliron, “Heterojunction solar cells based on colloidal quantum dots,” in *Colloidal Quantum Dot Optoelectronics and Photovoltaics*, G Konstantatos and EH Sargent, Eds. Cambridge Univ. Press, 2013.

1) DJ Milliron, Q Huang, Y Zhu, “Novel Deposition Methods,” in *Phase Change Materials: Science and Applications*, S Raoux and M Wuttig, Eds. Springer, 2009.

Issued Patents:

16) DJ Milliron, B Koo, G Garcia, CJ Dahlman, TM Mattox, L De Trizio, “Conductive Transition Metal Oxide Nanostructured Electrochromic Material and Optical Switching Devices Constructed Thereof,” US9785031, 2017.

15) BA Helms, DJ Milliron, EL Rosen, R Buonsanti, A Llordes, “Surface Chemical Modification of Nanocrystals,” US9595363, 2017.

14) BE Cohen, JP Schuck, DJ Gargas, EM Chan, AD Ostrowski, JJ Urban, DJ Milliron, “Controlled synthesis of bright and compatible lanthanide-doped upconverting nanocrystals,” US9556379, 2017.

13) DJ Milliron, G Garcia, A Llordes, R Tangirala, R Buonsanti, "Nanostructured transparent conducting oxide electrochromic device," US9341913, 2016.

12) R Tangirala, DJ Milliron, A Llordes, “Nanocomposite and method of making thereof,” US9287119, 2016.

11) DJ Milliron, EL Runnerstrom, BA Helms, A Llordes, R Buonsanti, G Garcia “Nanocrystal polymer composite electrochromic device,” US9207513, 2015.

10) DJ Milliron, R Buonsanti, "Colloidal infrared reflective and transparent conductive aluminum-doped zinc oxide nanocrystals," US8961828, 2015.

9) AP Alivisatos, JJ Dittmer, WU Huynh, D Milliron, “Semiconductor-nanocrystal/conjugated polymer thin films,” US8753916, 2014.

8) AP Alivisatos, I Gur, D Milliron, “Nanocrystal solar cells processed from solution,” US8440906, 2013.

7) I Gur, D Milliron, AP Alivisatos, H Liu, “Methods of making functionalized nanorods,” US8093494, 2012.

6) J Hedrick, DJ Milliron, A Nelson, R Pratt, “Method for forming and aligning chemically mediated dispersion of magnetic nanoparticles in a polymer,” US7854878, 2010.

5) AP Alivisatos, JJ Dittmer, WU Huynh, DJ Milliron, "Semiconductor-nanocrystal/conjugated polymer thin films," US7777303, 2010.

4) MA Caldwell, DJ Milliron, “Inorganic metal chalcogen cluster precursors and methods for forming colloidal metal chalcogenide nanoparticles using the same,” US7670584, 2010.

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2) DJ Milliron, DB Mitzi, “Solution deposition of chalcogenide films containing transition metals,” US7341917, 2008.

1) AP Alivisatos, D Milliron, L Manna, SM Hughes, “Nanocrystals with linear and branched topology,” US7303628, 2007.

Pending Patent Applications:

6) DJ Milliron, Y Wang, “Electrochromic Electrodes and Methods of Making and Use Thereof,” 2016.

5) DJ Milliron, J Kim, “Electrochromic Electrodes and Methods of Making and Use Thereof,” 2016.

4) DJ Milliron, BH Kim, “Nanostructured Conducting Films with a Heterogeneous Dopant Distribution and Methods of Making and Use Thereof,” 2016.

3) DJ Milliron, G LeBlanc, A Bergerud, “Electrochromic-Thermochromic Devices and Methods of Making and Use Thereof,” 2016.

2) DJ Milliron, A Llordes, Y Wang, G LeBlanc, “Method for Producing Electrochromic Films by Low Temperature Chemical Condensation of Polyoxometalates,” 2014.

1) DJ Milliron, A Llordes, R Buonsanti, G Garcia, “Electrochromic Nanocomposite Films,” 2011, 2014.

Honors and Awards:

- Edith and Peter O’Donnell Award in Engineering, TAMEST (2018)
- Norman Hackerman Award, Welch Foundation (2017)
- Sloan Research Fellowship (2016)
- Defense Science Study Group member (2016-2017)
- Caltech Resnick Institute Resonate Award (2015)

- DOE Early Career Research Program Awardee (2010-2015)
- R&D 100 Award for Universal Smart Windows (2013)
- BASF/VW Science Award in Electrochemistry (finalist, 2012, 2013)
- Saint-Gobain NOVA External Venturing Innovation Competition (w/ Heliotrope, 1st place, 2012)
- NREL Innovation Growth Forum (w/ Heliotrope, finalist, 2012)
- Berkeley Lab Spot Award (2011)
- MDV (Mohr Davidow Ventures) Innovators Award (2010)
- LBNL Outstanding Performance Award (2010)
- DOE Outstanding Mentor Award (2010)
- Berkeley Lab Spot Award (2010)
- R&D 100 Award for Nanocrystal Solar Cells (2009)
- E\PCOS Conference, Best Presentation Award (2009)
- MRS Spring Meeting, Best Poster Award (2007)
- Tech Transfer Award, LBNL (2004)
- National Defense Science and Engineering Graduate Fellowship (1999-2002)
- Barry M. Goldwater Scholarship (1997-1999)
- Robert C. Byrd Scholarship (1995-1999)
- National Science Scholars' Program award recipient (1995)
- Calvin Dodd MacCracken Senior Thesis Award (1999) – one of two awarded from 300 eligible
- Robert Thornton McCay Prize in Physical Chemistry (1999) – one of three (class of 40)
- Outstanding Achievement in Materials Science (1999) – only award in Materials Science
- William Foster Memorial Prize in Chemistry (1998) – only award (class of 40)

Synergistic Activities:

- Gordon Research Conference on Colloidal Semiconductor Nanocrystals (founding vice chair, 2014; chair, 2016)
- Founder and Chief Scientific Officer, Heliotrope Technologies (2012 - 2017)
- Scientific Advisory Board, PLANT PV (2011-2017)
- Technical Advisory Board, Pacific Light Tech (2011-2015)
- Technical Advisory Board, Spectrawatt (2010-2011)
- Scientific Advisory Board, Nanosys (2009-2010)
- MRS/APS committee on Energy Critical Elements (2009-2011)

Teaching Experience:

Materials Physics	UT Austin CHE 384T (2016-2017)
Chemical Engineering Materials	UT Austin CHE 350 (2014-2015, 2017-2018)
General Chemistry	Graduate Student Instructor, UCB Chemistry
Statistical Mechanics and Thermodynamics	Graduate Student Instructor, UCB Chemistry (2 terms)
Introduction to Nanotechnology	Annual (4 times to date) guest lecture at Haas School of Business, UCB
Introduction to Nano-Science and Engineering	Guest lecture in graduate class, UCB MSE Department
Preparative Strategies in Solid State and Materials Chemistry	Guest lectures in ICMR summer school, UCSB
Materials Chemistry	Guest lectures, UCB Chem and MSE Depts
Introduction to Nanotechnology	Guest lecture, Stanford EE Dept

Graduate and Postdoctoral Advisors and Advisees:

First name	Last name	Relationship	Co-advisor	Current Affiliation
Shin Hum	Cho	student		UT Austin
Manuel	Dominguez	student	EV Anslyn	UT Austin
Stephen	Gibbs	student		UT Austin
Lauren	Gilbert	student		UT Austin

Sungyeon	Heo	student		UT Austin
Kihoon	Kim	student		UT Austin
Vikram	Lakhanpal	student	EV Anslyn	UT Austin
Hsin-Che	Lu	student		UT Austin
Gary	Ong	student		UC Berkeley
Camila	Saez	student	TM Truskett	UT Austin
Corey	Staller	student		UT Austin
Sandeep	Ghosh	postdoc		UT Austin
Molly	Jhong	postdoc		UT Austin
Beth	Lindquist	postdoc	TM Truskett	UT Austin
Ankit	Agrawal	student		UT Austin (postdoc)
Amy	Bergerud	student		Seagate
Marissa	Caldwell	student	H-SP Wong, Stanford	Medtronic
Clayton	Dahlman	student		UCSB (postdoc)
Guillermo	Garcia	student		Heliotrope Technologies
Robert	Johns	student		Intel
Sebastien	Lounis	student		LBNL
Evan	Runnerstrom	student		NC State (postdoc)
Raffaella	Buonsanti	postdoc		EPFL
Emory	Chan	postdoc		LBNL
Gang	Han	postdoc	BE Cohen, LBNL	Univ. of Massachusetts
Byung Hyo	Kim	postdoc		Seoul National Univ. (postdoc)
Jongwook	Kim	postdoc		Ecole Polytechnique
Natacha	Krins	postdoc	TJ Richardson, J Cabana, LBNL	Univ. Pierre et Marie Curie
Gabriel	LeBlanc	postdoc		Univ. of Tulsa
Anna	Llordes	postdoc		CIC EnergiGUNE, Spain
Rueben	Mendelsberg	postdoc	A Anders, LBNL	Velo3D
Hoi Ri	Moon	postdoc	JJ Urban, LBNL	UNIST
Oun Ho	Park	postdoc		Applied Materials
Jessy	Rivest	postdoc		Palo Alto Research Center
Evelyn	Rosen	postdoc	BA Helms, LBNL	Heliotrope Technologies
April	Sawvel	postdoc	BA Helms, LBNL	LLNL (postdoc)
Richa	Sharma	postdoc		Schlumberger Research
Amita	Singh	postdoc		LANL (postdoc)
Ajay	Singh	postdoc		LANL (postdoc)
Yizheng	Tan	postdoc		Santa Clara University
Ravisubhash	Tangirala	postdoc		Nanosys
Robert	Wang	postdoc		Arizona State Univ.
Yang	Wang	postdoc		Air Liquide
Omid	Zandi	postdoc		Tokyo Electron
Renjia	Zhou	postdoc		Linear Technologies
A. Paul	Alivisatos	PhD advisor		UC Berkeley/LBNL
David	Mitzi	PD advisor		Duke Univ.

Professional Memberships:

- American Chemical Society
- Materials Research Society
- American Physical Society

- American Institute of Chemical Engineers
- Sigma Xi
- Phi Beta Kappa

Research Proposal Review Activities:

- NSF Division of Materials Research, Division of Chemistry
- DOE Basic Energy Sciences
- Proposal Study Panels for Center for Functional Nanomaterials, Brookhaven National Laboratory and Center for Integrated Nanotechnologies, Los Alamos and Sandia National Labortories
- Cyclotron Road, Lawrence Berkeley National Laboratory

Journal Editorial Activities:

- *Nano Letters*, Associate Editor (2015 -)
- *ACS Photonics*, Editorial Advisory Board (2016 -)
- *Chemistry of Materials*, Editorial Advisory Board (2015 -)
    - *Chemistry of Materials* Reviewer Award (2015)
- *ACS Combinatorial Science,* Editorial Advisory Board (2011 - 2015)
- *Scientific Reports*, Editorial Board (2013 - 2015)

Invited Presentations and Seminars:

12.2017	Materials Research Society National Meeting, Boston (2 talks)
11.2017	American Institute of Chemical Engineers National Meeting, Minneapolis
10.2017	University of Illinois, Urbana-Champaign, Department of Chemistry
08.2017	Applied Materials, Santa Clara
06.2017	Gordon Research Conference, Plasmonically Powered Processes, Hong Kong
04.2017	American Chemical Society National Meeting, San Francisco (2 talks)
12.2016	PacSurf, Hawaii
12.2016	Materials Research Society National Meeting, Boston
11.2016	University of Washington, Chemical Engineering
11.2016	American Institute of Chemical Engineers National Meeting, San Francisco
11.2016	Caltech, Chemical Engineering
11.2016	Caltech, Materials
11.2016	Bowling Green State University, Center for Photochemical Science
09.2016	Louisiana State University, Department of Chemistry, Benjamin P. Boussert Lecture
06.2016	Fudan University, Department of Chemistry, Shanghai, China
06.2016	Nature Conference on Materials for Energy, Wuhan, China
04.2016	Notre Dame University, Department of Chemistry
04.2016	Pennsylvania State University, Department of Chemistry
04.2016	MIT, Center for Excitonics
03.2016	Rice University, Materials Science & Nanoengineering Department
01.2016	Ecole Polytechnique, Paris, France
01.2016	Universite de Liege, Liege, Belgium
12.2015	Pacifichem, Honolulu
12.2015	Materials Research Society National Meeting, Boston (two presentations)
11.2015	Composites at Lake Louise, Lake Louise, Canada
10.2015	stARTup Studio, Austin
09.2015	CICbiomaGUNE seminar, Donostia-San Sebastian, Spain
09.2015	CICenergiGUNE seminar, Vitoria-Gasteiz, Spain
09.2015	FQDots Conference, nanoGe, Santiago de Compostella, Spain
08.2015	American Chemical Society National Meeting, Boston, Massachusetts
07.2015	Aspen Ideas Festival, Aspen
05.2015	Electrochemical Society National Meeting, Chicago
05.2015	Washington University, St. Louis, Institute for Materials Science & Engineering

04.2015 Washington University, St. Louis, Department of Chemistry
03.2015 American Chemical Society National Meeting, Denver (two presentations)
03.2015 BASF 150th Anniversary Science Symposium, Ludwigshafen, Germany
03.2015 American Physical Society National Meeting, San Antonio
02.2015 Gordon Research Conference, Nanomaterials for Energy Technologies, Ventura
02.2015 CORE-CM seminar, Michigan State University
02.2015 Center for Nano- and Molecular Science, University of Texas at Austin
01.2015 Materials Science & Engineering Department, North Carolina State University
10.2014 KAUST, Applied Functional Materials Workshop, Saudi Arabia
10.2014 Wayne State University, Nano@Wayne seminar, Detroit, Michigan
09.2014 Center for NanoScience, Workshop: Walk and Talk at the Nanoscale, Venice, Italy
08.2014 American Chemical Society National Meeting, San Francisco, California
07.2014 Gordon Research Conference, Nanostructure Fabrication, University of New England
07.2014 Gordon Research Conference, Plasmonics, Sunday River Resort
06.2014 The Molecular Foundry, Lawrence Berkeley National Lab, Berkeley
05.2014 European Materials Research Society Spring Meeting, Lille, France (two presentations)
05.2014 Nanoscience with Nanocrystals (NaNaX), Bad Hofgastein, Austria
04.2014 Materials Research Society National Meeting, San Francisco, California
03.2014 American Chemical Society National Meeting, Dallas, Texas
02.2014 ARPA-E Energy Innovation Summit, Washington, DC
02.2014 Studio One: The Nature of Programming Matter, University of California, Berkeley (plenary)
01.2014 Middle Eastern Technical University, Ankara, Turkey
10.2013 Norwegian University of Science and Technology, Trondheim, Norway
09.2013 Department of Chemistry, Texas A&M University, College Station, Texas
09.2013 American Chemical Society National Meeting, Indianapolis
08.2013 Transatlantic Frontiers of Chemistry, Seeon, Germany
07.2013 ICMAT, Singapore
05.2013 BASF, Ludwigshafen, Germany
04.2013 Ludwig Maximillian University, Department of Chemistry, Munich, Germany
04.2013 Max Planck Institute for Chemical Energy Conversion, Muelheim, Germany
04.2013 Max Planck Institute for Solid State Research, Stuttgart, Germany
04.2013 Massachusetts Institute of Technology, Materials Science and Engineering Department
04.2013 University of Texas at Austin, Chemical Engineering Department
04.2013 Materials Research Society Spring Meeting, San Francisco
03.2013 University of California, Berkeley, Nanoscale Science and Engineering seminar
02.2013 University of California, Berkeley, Chemical Engineering Department
02.2013 Cornell University, Materials Science and Engineering Department, Ithica
02.2013 University of Washington, Materials Science and Engineering Department, Seattle
11.2012 ALS/CXRO Seminar Series, Berkeley
11.2012 Seoul National University, Department of Chemical and Biological Engineering, Seoul
11.2012 KAIST, EEWS Department, Daejeon
11.2012 Yonsei University, Department of Chemistry, Seoul
11.2012 Stanford University, Optics and Electronics seminar, Palo Alto, California
10.2012 Advanced Light Source Workshop on mesoscale science beamline, Berkeley
10.2012 Molecular Foundry Workshop on Nanoscale Battery Materials, Berkeley
10.2012 Bay Area Photovoltaics Consortium Annual Meeting, Berkeley (plenary)
09.2012 University of California, Berkeley, Department of Chemistry
08.2012 Dow Chemical, Midland, MI
08.2012 Tenth International Meeting on Electrochromism, Holland, MI (plenary)
06.2012 Gordon Research Conference, Inorganic Chemistry, University of New England
06.2012 Istituto Italiano di Tecnologia, Genoa, Italy
06.2012 CIMTEC, Montecatini Terme, Italy

04.2012	Princeton University, Department of Chemistry
04.2012	University of California, Los Angeles, CNSI
02.2012	University of California, Santa Barbara, Materials Department
01.2012	SPIE Photonics West, BiOS, San Francisco, California
11.2011	Marin Science Seminar, San Rafael, California
10.2011	ARPA-E, US Department of Energy, Washington, DC
09.2011	European Materials Research Society Meeting, Warsaw
08.2011	American Chemical Society National Meeting, Denver
07.2011	Gordon Research Conference, Clusters, Nanocrystals, & Nanostructures, Mount Holyoke
07.2011	Argonne National Laboratory, Center for Nanoscale Materials
05.2011	LBNL Carbon Cycle 2.0 Seminar, Berkeley
05.2011	University of California, San Diego, Nanoengineering Department
04.2011	University of California, Berkeley, EECS Solid State Seminar
04.2011	California Institute of Technology, Forum on Nanotechnology for Sustainability
02.2011	University of California, Santa Barbara, MROP
09.2010	Istituto Italiano di Tecnologia, Genoa, Italy
08.2010	LBNL Summer Lecture Series, Berkeley
06.2010	Crystal Growth West, South Lake Tahoe, California
05.2010	DNV Materials Forum, Columbus, Ohio
01.2010	University of California, Santa Barbara, Materials Department
09.2009	European Phase Change and Ovonic Science conference, Aachen, Germany, Selected as “Best Presentation.”
06.2009	NSRC contractors meeting, Annapolis, Maryland
04.2009	MRS Spring Meeting, San Francisco
01.2009	Oregon State University, Eugene
10.2008	University of California, Berkeley, Nanoscience seminar series
09.2008	LBNL, The Molecular Foundry
09.2008	European Phase Change and Ovonic Science Conference, Prague
04.2008	SUNY, Stonybrook, Department of Physics and Astronomy
04.2008	MRS Spring Meeting, San Francisco
10.2007	CCNY, New York, Department of Chemistry
11.2006	Palo Alto Research Center (PARC)
03.2003	International Symposium on Compound Semiconductors (ISCS), San Diego
03.2003	Nanoscale Science Research Centers Workshop, Washington, DC