

Delia J Milliron

The University of Texas at Austin
200 E. Dean Keeton Street
Austin, Texas 78712
milliron@che.utexas.edu

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
- 2024 –** : Professor, Department of Chemistry, University of Texas at Austin
- 2023 –** : Ernest Cockrell, Sr. Chair #1 in Engineering, University of Texas at Austin
- 2018 – 2023:** T. Brockett Hudson Professorship, University of Texas at Austin
- 2017 – 2018:** Henry Beckman Professorship, University of Texas at Austin
- 2013 – 2017:** Associate Professor, Department of Chemical Engineering, University of Texas at Austin
- 2016 – 2018:** 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
- 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:

- 2021 –** : Chair, Department of Chemical Engineering, University of Texas at Austin
- 2012 – 2013:** Deputy Director, Molecular Foundry, LBNL
- 2008 – 2012:** Director, Inorganic Nanostructures Facility, Molecular Foundry, LBNL

Journal Publications:

Contact author(s) are marked with *.

195) BJ Roman, SA Shubert-Zuleta, DJ Milliron*, “Tunable optical response of plasmonic metal oxide nanocrystals,” *MRS Bulletin*, in press. doi:10.1557/s43577-024-00785-8

194) J Clarke, L Melcher, AD Crowell, F Cavanna, JR Houser, K Graham, AM Green, JC Stachowiak, TM Truskett, DJ Milliron, AM Rosales, M Das*, and J Alvarado*, “Morphological control of bundled actin networks subject to fixed-mass depletion,” *J. Chem. Phys.* **161** (2024), 074905.
<https://doi.org/10.1063/5.0197269>

193) DW Davies, BJ Roman, DJ Milliron*, “Tuning Emissance in Films of Plasmonic Metal Oxide Nanocrystals for Daytime Radiative Cooling,” *Sol. Energy Mater. Sol. Cells* **277** (2024), 113094.
<https://doi.org/10.1016/j.solmat.2024.113094>

192) ZM Sherman, DJ Milliron*, TM Truskett*, “Distribution of Single-Particle Resonances Determines Plasmonic Response of Disordered Nanoparticle Ensembles,” *ACS Nano* **18** (2024), 21347-21363.
<https://pubs.acs.org/doi/10.1021/acsnano.4c05803>

191) WJ Chang, BJ Roman, AM Green, TM Truskett*, DJ Milliron*, “Surface-enhanced infrared absorption spectroscopy by resonant vibrational coupling with plasmonic metal oxide nanocrystals,” *ACS Nano* **18** (2024), 20636-20647. <https://pubs.acs.org/doi/10.1021/acsnano.4c06145>

- 190) ZM Sherman, J Kang, DJ Milliron*, TM Truskett*, "Illuminating disorder: Optical properties of complex plasmonic assemblies," *J. Phys. Chem. Lett.* **15** (2024), 6424-6434. <https://pubs.acs.org/doi/10.1021/acs.jpcclett.4c01283>
- 189) SA Shubert-Zuleta, V Seguí Barragan, MW Berry, R Russum, Jr, DJ Milliron*, "How depletion layers govern the dynamic plasmonic response of In-doped CdO nanocrystals," *ACS Nano* **18** (2024), 16776-16789. <https://doi.org/10.1021/acsnano.4c02223>
- 188) BZ Zydlewski, DJ Milliron*, "Dual-band electrochromic devices utilizing niobium oxide nanocrystals," *ACS Appl. Mater. Interfaces* **16** (2024), 24920-24928. <https://pubs.acs.org/doi/10.1021/acсами.4c02997>
- 187) Y Wu, A Kenčná, SH Cho, DJ Milliron, JA Hachtel*, FJ García de Abajo*, "Singular and nonsingular transitions in the infrared plasmons of nearly touching nanocube dimers," *ACS Nano* **18** (2024), 15130-15138. <https://doi.org/10.1021/acsnano.4c02644>
- 186) MW Berry, AM Green, BJ Roman, TM Truskett*, DJ Milliron*, "Incorporating dopant effects in the plasmon ruler for metal oxide nanocrystal superlattices," *ACS Materials Lett.* **6** (2024), 1929-1937. <https://doi.org/10.1021/acsmaterialslett.4c00220>
- 185) AM Green, WJ Chang, ZM Sherman, Z Sakotic, K Kim, D Wasserman, DJ Milliron*, TM Truskett*, "Structural order and plasmonic response of nanoparticle monolayers," *ACS Photonics* **11** (2024), 1280-1292. <https://doi.org/10.1021/acsp Photonics.3c01813>
- 184) RA Marquez, E Kalokowski, M Espinosa, JT Bender, YJ Son, K Kawashima, CE Chukwuneke, LA Smith, H Celio, A Dolocan, X Zhan, N Miller, DJ Milliron, J Resasco, CB Mullins*, "Transition metal incorporation: Electrochemical, structure, and chemical composition effects on nickel oxyhydroxide oxygen-evolution electrocatalysts," *Energy Environ. Sci.* **17** (2024), 2028-2045. <https://doi.org/10.1039/D3EE03617K>
- 183) WJ Chang, Z Sakotic, A Ware, AM Green, BJ Roman, K Kim, TM Truskett*, D Wasserman*, DJ Milliron*, "Wavelength tunable infrared perfect absorption in plasmonic nanocrystal monolayers," *ACS Nano* **18** (2024), 972-982. <https://doi.org/10.1021/acsnano.3c09772>
- 182) J Kang, ZM Sherman, DL Conrad, HSN Crory, MN Dominguez, SA Valenzuela, EV Anslyn*, TM Truskett*, DJ Milliron*, "Structural control of plasmon resonance in molecularly linked metal oxide nanocrystal gel assemblies," *ACS Nano* **17** (2023), 24218-24226. <https://doi.org/10.1021/acsnano.3c09515>
- 181) J Fortunato, BZ Zydlewski, M Lei, NP Holzapfel, M Chagnot, JB Mitchell, H-C Lu, D-E Jiang, DJ Milliron*, V Augustyn*, "Dual-band electrochromism in hydrous tungsten oxide," *ACS Photonics* **10** (2023), 3409-3418. <https://pubs.acs.org/doi/abs/10.1021/acsp Photonics.3c00921>
- 180) V Seguí Barragan, BJ Roman, SA Shubert-Zuleta, MW Berry, H Celio, DJ Milliron*, "Dipolar ligands tune plasmonic properties of tin-doped indium oxide nanocrystals," *Nano Lett.* **23** (2023), 7983-7989. <https://doi.org/10.1021/acs.nanolett.3c01943>
- 179) K Kim, ZM Sherman, A Cleri, WJ Chang, J-P Maria, TM Truskett*, DJ Milliron*, "Hierarchically doped plasmonic nanocrystal metamaterials," *Nano Lett.* **23** (2023), 7633-7641. <https://doi.org/10.1021/acs.nanolett.3c02231>
- 178) SA Shubert-Zuleta, B Tandon, BJ Roman, XY Gan, DJ Milliron*, "How to quantify electrons in plasmonic colloidal metal oxide nanocrystals," *Chem. Mater.* **35** (2023), 3880-3891. <https://pubs.acs.org/doi/10.1021/acs.chemmater.2c03694>
- 177) P Banerjee*, GR Burks, SB Bialik, M Nassr, E Bello, M Alleyne, BD Freeman, JE Barrick, CM Schroeder, DJ Milliron, "Nanostructure-derived anti-reflectivity in leafhopper brochosomes," *Adv. Photon. Res.* **4** (2023), 2200343. <https://onlinelibrary.wiley.com/doi/10.1002/adpr.202200343>
- 176) ZM Sherman, K Kim, J Kang, BJ Roman, HSN Crory, DL Conrad, SA Valenzuela, E Lin, MN Dominguez, SL Gibbs, EV Anslyn*, DJ Milliron*, TM Truskett*, "Plasmonic response of complex nanoparticle assemblies," *Nano Lett.* **23** (2023), 3030-3037. <https://pubs.acs.org/doi/10.1021/acs.nanolett.3c00429>

- 175) B Tandon, SL Gibbs, C Dean, DJ Milliron*, "Highly responsive plasmon modulation in dopant-segregated nanocrystals," *Nano Lett.* **23** (2023), 908-915. <https://pubs.acs.org/doi/10.1021/acs.nanolett.2c04199>
- 174) BJ Roman, SA Shubert-Zuleta, G Shim, V Kyveryga, M Faris, DJ Milliron*, "Facet-enhanced dielectric sensitivity in plasmonic metal oxide nanocubes," *J. Phys. Chem. C* **127** (2023), 2456-2463. <https://pubs.acs.org/doi/10.1021/acs.jpcc.2c08495>
- 173) J Kang, ZM Sherman, HSN Crory, DL Conrad, MW Berry, BJ Roman, EV Anslyn*, TM Truskett*, DJ Milliron*, "Modular mixing in plasmonic metal oxide nanocrystal gels with thermoreversible links," *J. Chem. Phys.* **158** (2023), 024903. <https://aip.scitation.org/doi/10.1063/5.0130817>
- 172) JT Bender, AS Peterson, FC Østergaard, MA Wood, SMJ Heffernan, DJ Milliron, J Rossmeisl, J Resasco*, "Understanding cation effects on the hydrogen evolution reaction," *ACS Energy Lett.* **8** (2023), 657-665. <https://doi.org/10.1021/acsenergylett.2c02500>
- 171) K Kim, J Yu, J Noh, LC Reimnitz, M Chang, DR Gamelin, BA Korgel, GS Hwang, DJ Milliron*, "Synthetic control of intrinsic defect formation in metal oxide nanocrystals using dissociated spectator metal salts," *J. Am. Chem. Soc.* **144** (2022), 22941-22949. <https://pubs.acs.org/doi/10.1021/jacs.2c08716>
- 170) CK Ofosu, J Kang, TM Truskett*, DJ Milliron*, "Effective hard-sphere repulsions between oleate-capped colloidal metal oxide nanocrystals," *J. Phys. Chem. Lett.* **13** (2022), 11323-11329. <https://doi.org/10.1021/acs.jpcclett.2c02627>
- 169) AM Green, S Kadulkar, ZM Sherman, TM Fitzsimons, CK Ofosu, J Yan, D Zhao, J Ilavsky, AM Rosales, BA Helms, V Ganesan, TM Truskett*, DJ Milliron*, "Depletion-driven assembly of polymer-coated nanocrystals," *J. Phys. Chem. C* **126** (2022), 19507-19518. <https://doi.org/10.1021/acs.jpcc.2c06279>
- 168) T Kwon, T Wilcoxson, DJ Milliron, TM Truskett*, "Dynamics of equilibrium linked colloidal networks," *J. Chem. Phys.* **157** (2022), 184902. <https://doi.org/10.1063/5.0125125>
- 167) A Kim, T Vo, H An, P Banerjee, L Yao, S Zhou, C Kim, DJ Milliron, SC Glotzer*, Q Chen*, "Symmetry-breaking in patch formation on triangular gold nanoparticles by asymmetric polymer grafting," *Nat. Commun.* **13** (2022), 6774. <https://www.nature.com/articles/s41467-022-34246-0>
- 166) M Singh, ZM Sherman, DJ Milliron, TM Truskett*, "Linker-templated structure tuning of optical response in plasmonic nanoparticle gels," *J. Phys. Chem. C* **126** (2022), 16885-16893. <https://doi.org/10.1021/acs.jpcc.2c05353>
- 165) BZ Zydlewski, H-C Lu, H Celio, DJ Milliron*, "Site-selective ion intercalation controls spectral response in electrochromic hexagonal tungsten oxide nanocrystals," *J. Phys. Chem. C* **126** (2022), 14537-14546. <https://pubs.acs.org/doi/10.1021/acs.jpcc.2c02865>
- 164) VS Lakhanpal, BZ Zydlewski, XY Gan, H Celio, H-RM Jhong, CK Ofosu, DJ Milliron*, "Aqueous Transfer of Colloidal Metal Oxide Nanocrystals via Base-Driven Ligand Exchange," *Chem. Commun.* **58** (2022), 9496-9499. <https://pubs.rsc.org/en/content/articlelanding/2022/CC/D2CC02416K>
- 163) YJ Son, S Kim, V Leung, K Kawashima, J Noh, K Kim, RA Marquez, OA Carrasco-Jaim, LA Smith, H Celio, DJ Milliron, BA Korgel, CB Mullins*, "Effects of Electrochemical Conditioning on Nickel-Based Oxygen Evolution Electrocatalysts," *ACS Catal.* **12** (2022), 10384-10399. <https://pubs.acs.org/doi/full/10.1021/acscatal.2c01001>
- 162) H-C Lu, BZ Zydlewski, B Tandon, SA Shubert-Zuleta, DJ Milliron*, "Understanding the Role of Charge Storage Mechanisms in the Electrochromic Switching Kinetics of Metal Oxide Nanocrystals," *Chem. Mater.* **34** (2022), 5621-5633. <https://pubs.acs.org/doi/10.1021/acs.chemmater.2c00930>
- 161) CM Staller, SL Gibbs, XY Gan, JT Bender, K Jarvis, GK Ong, DJ Milliron*, "Contact conductance governs metallicity in conducting metal oxide nanocrystal films," *Nano Lett.* **22** (2022), 5009-5014. <https://doi.org/10.1021/acs.nanolett.2c01852>
- 160) B Tandon, H-C Lu, DJ Milliron*, "Dual-Band Electrochromism: Plasmonic and Polaronic Mechanisms," *J. Phys. Chem. C* **126** (2022), 9228-9238. <https://doi.org/10.1021/acs.jpcc.2c02155>

- 159) AM Green, CK Ofosu, J Kang, EV Anslyn*, TM Truskett*, DJ Milliron*, "Assembling Inorganic Nanocrystal Gels," *Nano Lett.* **4** (2022), 1457-1466. <https://pubs.acs.org/doi/10.1021/acs.nanolett.1c04707>
- 158) J Kang, SA Valenzuela, EY Lin, MN Dominguez, ZM Sherman, TM Truskett*, EV Anslyn*, DJ Milliron*, "Colorimetric quantification of linking in thermoreversible nanocrystal gel assemblies," *Sci. Adv.* **18** (2022), eabm7364. <https://www.science.org/doi/10.1126/sciadv.abm7364>
- 157) B Tandon, SA Shubert-Zuleta, DJ Milliron*, "Investigating the Role of Surface Depletion in Governing Electron Transfer Events in Colloidal Plasmonic Nanocrystals," *Chem. Mater.* **34** (2022), 777-788. <https://pubs.acs.org/doi/10.1021/acs.chemmater.1c03635>
- 156) AJ Graham, SL Gibbs, CA Saez Cabezas, Y Wang, AM Green, DJ Milliron*, BK Keitz*, "In Situ Optical Quantification of Extracellular Electron Transfer using Plasmonic Metal Oxide Nanocrystals," *ChemElectroChem* **9** (2022), e202101423. <http://dx.doi.org/10.1002/celec.202101423>
- 155) KM Roccapiore*, SH Cho, AR Lupini, DJ Milliron, and SV Kalinin*, "Sculpting the plasmonic responses of nanoparticles by directed electron beam irradiation," *Small* **18** (2022), 2105099. <https://onlinelibrary.wiley.com/doi/abs/10.1002/smll.202105099>
- 154) H-C Lu, N Katyal, G Henkelman*, DJ Milliron*, "Controlling the Shape Anisotropy of Monoclinic Nb₁₂O₂₉ Nanocrystals Enables Tunable Electrochromic Spectral Range," *J. Am. Chem. Soc.* **143** (2021), 15745-15755. <https://pubs.acs.org/doi/10.1021/jacs.1c06901>
- 153) H-RM Jhong, UO Nwabara, S Shubert-Zuleta, NS Grundish, B Tandon, LC Reimnitz, CM Staller, GK Ong, CA Saez Cabezas, JB Goodenough, PJA Kenis*, DJ Milliron*, "Efficient Aqueous Electroreduction of CO₂ to Formate at Low Overpotential on Indium Tin Oxide Nanocrystals," *Chem. Mater.* **33** (2021), 7675-7685. <https://doi.org/10.1021/acs.chemmater.1c01649>
- 152) D-H Lee, SA Valenzuela, MN Dominguez, M Otsuka, DJ Milliron*, EV Anslyn*, "A Self-Degradable Hydrogel Sensor for a Nerve Agent Tabun Mimic through a Self-Propagating Cascade," *Cell Rep. Phys. Sci.* **2** (2021), 100552. <https://doi.org/10.1016/j.xcrp.2021.100552>
- 151) B Tandon, SL Gibbs, BZ Zydlewski, DJ Milliron*, "Quantitative Analysis of Plasmonic Metal Oxide Nanocrystal Ensembles Reveals the Influence of Dopant Selection on Intrinsic Optoelectronic Properties," *Chem. Mater.* **33** (2021), 6955-6964. <https://pubs.acs.org/doi/10.1021/acs.chemmater.1c01951>
- 150) SV Kalinin*, KM Roccapiore, SH Cho, DJ Milliron, R Vasudevan, M Ziatdinov, JA Hachtel*, "Separating Physically Distinct Mechanisms in Complex Infrared Plasmonic Nanostructures via Machine Learning Enhanced Electron Energy Loss Spectroscopy," *Adv. Opt. Mater.* **9** (2021), 2001808. <https://doi.org/10.1002/adom.202001808>
- 149) CJ Dahlan, S Heo, Y Zhang, LC Reimnitz, D He, M Tang, DJ Milliron*, "Dynamics of Lithium Insertion in Electrochromic Titanium Dioxide Nanocrystal Ensembles," *J. Am. Chem. Soc.* **143** (2021), 8278-8294. <https://pubs.acs.org/doi/10.1021/jacs.0c10628>
- 148) SL Skjaervo, GK Ong, OG Grendal, KH Wells, W van Beek, K Ohara, DJ Milliron, S Tominaka, T Grande, M-A Einarsrud*, "Understanding the Hydrothermal Formation of NaNbO₃: Its Full Reaction Scheme and Kinetics," *Inorg. Chem.* **60** (2021), 7632-7640. <https://pubs.acs.org/doi/abs/10.1021/acs.inorgchem.0c02763>
- 147) MP Howard, ZM Sherman, AN Sreenivasan, SA Valenzuela, EV Anslyn, DJ Milliron, TM Truskett*, "Effects of Linker Flexibility of Phase Behavior and Structure of Linked Colloidal Gels," *J. Chem. Phys.* **154** (2021), 074901. <https://doi.org/10.1063/5.0038672>
- 146) ZM Sherman, AM Green, MP Howard, EV Anslyn*, TM Truskett*, DJ Milliron*, "Colloidal Nanocrystal Gels from Thermodynamic Principles," *Acc. Chem. Res.* **54** (2021), 798-807. <https://pubs.acs.org/doi/10.1021/acs.accounts.0c00796>
- 145) MP Howard, ZM Sherman, DJ Milliron, TM Truskett*, "Wertheim's Thermodynamic Perturbation Theory with Double-Bond Association and Its Application to Colloid-Linker Mixtures," *J. Chem. Phys.* **154** (2021), 024905. <https://aip.scitation.org/doi/10.1063/5.0033413>

- 144) N Borodinov, P Banerjee, SH Cho, DJ Milliron, OS Ovchinnikova, RK Vasudevan, JA Hachtel*, "Enhancing Hyperspectral EELS Analysis of Complex Plasmonic Nanostructures with Pan-Sharpener," *J. Chem. Phys.* **154** (2021), 014202. <https://doi.org/10.1063/5.0031324>
- 143) MN Dominguez, MP Howard, JM Maier, SA Valenzuela, ZM Sherman, JF Reuther, LC Reimnitz, J Kang, SH Cho, SL Gibbs, AK Menta, DL Zhuang, A van der Stok, SJ Kline, EV Anslyn*, TM Truskett*, DJ Milliron*, "Assembly of Linked Nanocrystal Colloids by Reversible Covalent Bonds," *Chem. Mater.* **32** (2020), 10235-10245. <https://doi.org/10.1021/acs.chemmater.0c04151>
- 142) SL Gibbs, CM Staller, A Agrawal, RW Johns, CA Saez Cabezas, DJ Milliron*, "Intrinsic Optical and Electronic Properties from Quantitative Analysis of Plasmonic Semiconductor Nanocrystal Ensemble Optical Extinction," *J. Phys. Chem. C* **124** (2020), 24351-24360. <https://pubs.acs.org/doi/10.1021/acs.jpcc.0c08195>
- 141) A Maho, CA Saez Cabezas, KA Meyertons, LC Reimnitz, S Sahu, BA Helms, DJ Milliron*, "Aqueous Processing and Spray Deposition of Polymer-Wrapped Tin-Doped Indium Oxide Nanocrystals as Electrochromic Thin Films," *Chem. Mater.* **32** (2020), 8401-8411. <https://pubs.acs.org/doi/10.1021/acs.chemmater.0c02399>
- 140) LC Reimnitz, T Lwin, M Lopez, DJ Milliron*, "Oxygen Storage in Transition Metal-Doped Bixbyite Vanadium Sesquioxide Nanocrystals," *ACS Appl. Nano Mat.* **3** (2020), 9645-9651. <https://pubs.acs.org/doi/10.1021/acsanm.0c01588>
- 139) SL Gibbs, C Dean, J Saad, B Tandon, CM Staller, A Agrawal, DJ Milliron*, "Dual-Mode Infrared Absorption by Segregating Dopants within Plasmonic Semiconductor Nanocrystals," *Nano Lett.* **20** (2020), 7498-7505. <https://pubs.acs.org/doi/10.1021/acs.nanolett.0c02992>
- 138) K Kim, LC Reimnitz, SH Cho, J Noh, Z Dong, SL Gibbs, BA Korgel, DJ Milliron*, "The Effect of Non-Incorporative Cations on Size and Shape of Indium Oxide Nanocrystals," *Chem. Mater.* **32** (2020), 9347-9354. <https://pubs.acs.org/doi/10.1021/acs.chemmater.0c03281>
- 137) S Kadulkar, DJ Milliron, TM Truskett*, V Ganesan*, "Transport Mechanisms Underlying Ionic Conductivity in Nanoparticle-Based Single-Ion Electrolytes," *J. Phys. Chem. Lett.* **11** (2020), 6970-6975. <https://pubs.acs.org/doi/10.1021/acs.jpcclett.0c01937>
- 136) S Heo, SH Cho, CJ Dahlman, A Agrawal, DJ Milliron*, "Influence of Crystalline and Shape Anisotropy on Electrochromic Modulation in Doped Semiconductor Nanocrystals," *ACS Energy Lett.* **5** (2020), 2662-2670. <https://pubs.acs.org/doi/10.1021/acsenerylett.0c01236>
- 135) H-C Lu, S Ghosh, N Katyal, VS Lakhanpal, G Henkelman, DJ Milliron*, "Synthesis and Dual-Mode Electrochromism of Anisotropic Monoclinic Nb₁₂O₂₉ Colloidal Nanoplatelets," *ACS Nano* **14** (2020), 10068-10082. <https://pubs.acs.org/doi/10.1021/acsnano.0c03283>
- 134) CA Saez Cabezas, K Miller, S Heo, A Dolocan, G LeBlanc, DJ Milliron*, "Direct Electrochemical Deposition of Transparent Metal Oxide Thin Films from Polyoxometalates," *Chem. Mater.* **32** (2020), 4600-4608. <https://pubs.acs.org/doi/10.1021/acs.chemmater.0c00849>
- 133) CA Saez Cabezas, ZM Sherman, MP Howard, MN Dominguez, SH Cho, GK Ong, A Green, TM Truskett*, DJ Milliron*, "Universal Gelation of Metal Oxide Nanocrystals via Depletion Attractions," *Nano Lett.* **20** (2020), 4007-4013. <https://pubs.acs.org/doi/10.1021/acs.nanolett.0c01311>
- 132) MA Blemker, SL Gibbs, E Raulerson, DJ Milliron, ST Roberts*, "Modulation of the Visible Absorption and Reflection Profiles of ITO Nanocrystal Thin Films by Plasmon Excitation," *ACS Photonics* **7** (2020), 1188-1196. <https://pubs.acs.org/doi/abs/10.1021/acsp Photonics.9b01825>
- 131) S Heo, CJ Dahlman, CM Staller, T Jiang, A Dolocan, BA Korgel, DJ Milliron*, "Enhanced Coloration Efficiency of Electrochromic Tungsten Oxide Nanorods by Site Selective Occupation of Sodium Ions," *Nano Lett.* **20** (2020), 2072-2079. <https://pubs.acs.org/doi/10.1021/acs.nanolett.0c00052>
- 130) SH Cho, KM Roccapiore, CK Dass, S Ghosh, J Choi, J Noh, L Reimnitz, S Heo, K Kim, K Xie, BA Korgel, X Li, JR Hendrickson, JA Hachtel, DJ Milliron*, "Spectrally Tunable Infrared Plasmonic F₂Sn:In₂O₃ Nanocrystal Cubes," *J. Chem. Phys.*, **152** (2020), 014709. <https://aip.scitation.org/doi/full/10.1063/1.5139050>

- 129) GK Ong, CA Saez Cabezas, MN Dominguez, SL Skjaervo, S Heo, DJ Milliron*, "Electrochromic Niobium Oxide Nanorods," *Chem. Mater.* **32** (2020), 468-475.
<https://pubs.acs.org/doi/abs/10.1021/acs.chemmater.9b04061>
- 128) CJ Thomas, Y Zhang, A Guillaussier, K Bdeir, OF Aly, HG Kim, J Noh, LC Reimnitz, J Li, FL Deepak, D-M Smilgies, DJ Milliron, BA Korgel*, "Thermal Stability of the Black Perovskite Phase in Cesium Lead Iodide Nanocrystals Under Humid Conditions," *Chem. Mater.* **31** (2019), 9750-9758.
<https://pubs.acs.org/doi/10.1021/acs.chemmater.9b03533>
- 127) CM Staller, SL Gibbs, CA Saez Cabezas, DJ Milliron*, "Quantitative Analysis of Extinction Coefficients of Tin-Doped Indium Oxide Nanocrystal Ensembles," *Nano Lett.* **19** (2019), 8149-8154.
<https://pubs.acs.org/doi/10.1021/acs.nanolett.9b03424>
- 126) S Ghosh, HC Lu, SH Cho, T Maruvada, MC Prince, DJ Milliron*, "Colloidal ReO₃ nanocrystals: Extra Re d-electron instigating a plasmonic response," *J. Am. Chem. Soc.* **141** (2019), 16331-16343.
<https://pubs.acs.org/doi/abs/10.1021/jacs.9b06938>
- 125) MP Howard, RJ Jadrich, BA Lindquist, F Khabaz, RT Bonnacaze, DJ Milliron, TM Truskett*, "Structure and Phase Behavior of Polymer-Linked Colloidal Gels," *J. Chem. Phys.* **151** (2019), 124901.
<https://aip.scitation.org/doi/10.1063/1.5119359>
- 124) B Tandon, S Ghosh, DJ Milliron*, "Dopant Selection Strategy for High Quality Factor Localized Surface Plasmon Resonance from Doped Metal Oxide Nanocrystals," *Chem. Mater.* **31** (2019), 7752-7760. <https://pubs.acs.org/doi/10.1021/acs.chemmater.9b02917>
- 123) SL Gibbs, CM Staller, DJ Milliron*, "Surface Depletion Layers in Plasmonic Metal Oxide Nanocrystals," *Acc. Chem. Res.* **52** (2019), 2516-2524.
<https://pubs.acs.org/doi/10.1021/acs.accounts.9b00287>
- 122) TD Siegler, Y Zhang, A Dolocan, L Reimnitz, A Torabi, M Abney, J Choi, G Cossio, D Houck, E Yu, X Li, T Harvey, DJ Milliron, BA Korgel*, "Addition of Monovalent Silver Cations to CH₃NH₃PbBr₃ Produces Crystallographically Oriented Perovskite Thin Films," *ACS Appl. Energy Mater.* **2** (2019), 6087-6096.
<https://pubs.acs.org/doi/abs/10.1021/acsaem.9b01298>
- 121) S Heo, A Agrawal, DJ Milliron*, "Wide Dynamic Range in Tunable Electrochromic Bragg Stacks from Doped Semiconductor Nanocrystals," *Adv. Funct. Mater.* **29** (2019), 1904555.
<https://onlinelibrary.wiley.com/doi/abs/10.1002/adfm.201904555>
- 120) A Maho*, LC Lamela, C Henrist, L Henrard, LH Tizei, M Kociak, O Stéphan, S Heo, DJ Milliron, B Vertruyen, R Cloots, "Solvothermally-Synthesized Tin-Doped Indium Oxide Plasmonic Nanocrystals Spray-Deposited onto Glass as Near-Infrared Electrochromic Thin Films," *Sol. Energy Mater. Sol. Cells* **200** (2019), 110014. <https://www.sciencedirect.com/science/article/pii/S0927024819303435>
- 119) SH Cho, S Ghosh, ZJ Berkson, JA Hachtel, J Shi, X Zhao, LC Reimnitz, CJ Dahlman, Y Ho, A Yang, Y Liu, J-C Idrobo, BF Chmelka*, DJ Milliron*, "Syntheses of Colloidal F:In₂O₃ Cubes: Fluorine-Induced Faceting and Infrared Plasmonic Response," *Chem. Mater.* **31** (2019), 2661-2676.
<https://pubs.acs.org/doi/10.1021/acs.chemmater.9b00906>
- 118) B Tandon, A Agrawal, S Heo, DJ Milliron*, "Competition between Depletion Effects and Coupling in the Plasmon Modulation of Doped Metal Oxide Nanocrystals," *Nano Lett.* **19** (2019), 2012-2019.
<https://pubs.acs.org/doi/10.1021/acs.nanolett.9b00079>
- 117) TD Siegler, LC Reimnitz, M Suri, SH Cho, AJ Bergerud, M Abney, DJ Milliron, BA Korgel*, "Deliquescent Chromism of Nickel (II) Iodide Thin Films," *Langmuir* **35** (2019), 2146-2152.
<https://pubs.acs.org/doi/abs/10.1021/acs.langmuir.8b03979>
- 116) CJ Dahlman, A Agrawal, CM Staller, J Adair, DJ Milliron*, "Anisotropic Origins of Localized Surface Plasmon Resonance in n-Type Anatase TiO₂ Nanocrystals," *Chem. Mater.* **31** (2019), 502-511.
<https://pubs.acs.org/doi/10.1021/acs.chemmater.8b04519>
- 115) TD Siegler, DW Houck, SH Cho, DJ Milliron, BA Korgel*, "Bismuth Enhances the Stability of CH₃NH₃PbI₃ (MAPI) Perovskite Under High Humidity," *J. Phys. Chem. C* **123** (2019), 963-970.
doi:10.1021/acs.jpcc.8b11674. <https://pubs.acs.org/doi/10.1021/acs.jpcc.8b11674>

- 114) A Singh, L Lutz, GK Ong, K Bustillo, S Raoux, JL Jordan-Sweet, DJ Milliron*, "Controlling Morphology in Polycrystalline Films by Nucleation and Growth from Metastable Nanocrystals," *Nano Lett.* **18** (2018), 5530-5537. <https://pubs.acs.org/doi/10.1021/acs.nanolett.8b01916>
- 113) CA Saez Cabezas, GK Ong, RB Jadrich, BA Lindquist, A Agrawal, TM Truskett*, DJ Milliron*, "Gelation of Plasmonic Metal Oxide Nanocrystals by Polymer-Induced Depletion-Attractions," *Proc. Nat. Acad. Sci.* **115** (2018), 8925-8930. <https://www.pnas.org/content/115/36/8925.short>
- 112) O Zandi, A Agrawal, AB Shearer, LC Reimnitz, CJ Dahلمان, CM Staller, DJ Milliron*, "Impacts of Surface Depletion on the Plasmonic Properties of Doped Semiconductor Nanocrystals," *Nat. Mater.* **17** (2018), 710-717. <https://www.nature.com/articles/s41563-018-0130-5>
- 111) CM Staller, ZL Robinson, A Agrawal, SL Gibbs, BL Greenberg, SD Lounis, UR Kortshagen, DJ Milliron*, "Tuning Nanocrystal Surface Depletion by Controlling Dopant Distribution as a Route Toward Enhanced Film Conductivity," *Nano Lett.* **18** (2018), 2870-2878. <https://pubs.acs.org/doi/10.1021/acs.nanolett.7b05484>
- 110) R Sharma, AM Sawvel, B Barton, A Dong, R Buonsanti, A Llordes, E Schaible, S Axnanda, Z Liu, JJ Urban, D Nordlund, C Kisielowski, DJ Milliron*, "Modulation of Carrier Type in Nanocrystal-in-Matrix Composites by Interfacial Doping," *Chem. Mater.* **30** (2018), 2544-2549. <https://pubs.acs.org/doi/10.1021/acs.chemmater.7b04689>
- 109) A Agrawal, I Kriegel, EL Runnerstrom, F Scotognella, A Llordes, DJ Milliron*, "Rationalizing the Impact of Surface Depletion on Electrochemical Modulation of Plasmon Resonance Absorption in Metal Oxide Nanocrystals," *ACS Photonics* **5** (2018), 2044-2050. <https://pubs.acs.org/doi/10.1021/acsp Photonics.7b01587>
- 108) BH Kim, CM Staller, SH Cho, S Heo, CE Garrison, J Kim, DJ Milliron*, "High Mobility in Nanocrystal-Based Transparent Conducting Oxide Thin Films," *ACS Nano* **12** (2018), 3200-3208. <https://pubs.acs.org/doi/10.1021/acsnano.7b06783>
- 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* **122** (2018), 13624-13635. <https://pubs.acs.org/doi/10.1021/acs.jpcc.7b12824>
- 106) A Agrawal, SH Cho, O Zandi, S Ghosh, RW Johns, DJ Milliron*, "Localized Surface Plasmon Resonance in Semiconductor Nanocrystals," *Chem. Rev.* **118** (2018), 3121-3207. <https://pubs.acs.org/doi/10.1021/acs.chemrev.7b00613>
- 105) S Heo, J Kim, GK Ong, DJ Milliron*, "Template-Free Mesoporous Electrochromic Films on Flexible Substrates from Tungsten Oxide Nanorods," *Nano Lett.* **17** (2017), 5756-5761. <http://pubs.acs.org/doi/abs/10.1021/acs.nanolett.7b02730>
- 104) A Singh, A Singh, GK Ong, MR Jones, D Nordlund, K Bustillo, J Ciston, AP Alivisatos, DJ Milliron*, "Dopant Mediated Assembly of Cu₂ZnSnS₄ Nanorods into Atomically Coupled 2D Sheets in Solution," *Nano Lett.* **17** (2017), 3421-3428. <http://pubs.acs.org/doi/abs/10.1021/acs.nanolett.7b00232>
- 103) TE Williams, D Ushizima, C Zhu, A Anders, DJ Milliron, BA Helms*, "Nearest-Neighbor Nanocrystal Bonding Dictates Framework Stability or Collapse in Colloidal Nanocrystal Frameworks," *Chem. Commun.* **53** (2017), 4853-4856. <http://pubs.rsc.org/-/content/articlehtml/2017/cc/c6cc10183f>
- 102) A Agrawal, A Singh, S Yazdi, A Singh, GK Ong, K Bustillo, RW Johns, E Ringe, DJ Milliron*, "Resonant Coupling between Molecular Vibrations and Localized Surface Plasmon Resonance of Faceted Metal Oxide Nanocrystals," *Nano Lett.* **17** (2017), 2611-2620. <http://pubs.acs.org/doi/abs/10.1021/acs.nanolett.7b00404>
- 101) RW Johns, MA Blemker, MS Azzaro, S Heo, EL Runnerstrom, DJ Milliron, ST Roberts*, "Charge Carrier Concentration Dependence of Ultrafast Plasmonic Relaxation in Conducting Metal Oxide Nanocrystals," *J. Mater. Chem. C* **5** (2017), 5757-5763. <http://pubs.rsc.org/is/content/articlelanding/2017/tc/c7tc00600d>
- 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>
- 99) A Agrawal, RW Johns, DJ Milliron*, "Control of Localized Surface Plasmon Resonance in Metal Oxide Nanocrystals," *Ann. Rev. Mater. Res.* **47** (2017), 1-31.
<http://www.annualreviews.org/doi/abs/10.1146/annurev-matsci-070616-124259>
- 98) BA Lindquist, S Dutta, RB Jadrich, DJ Milliron, TM Truskett*, "Interactions and Design Rules for Assembly of Porous Colloidal Mesophases," *Soft Matter* **13** (2017), 1335-1343.
<http://pubs.rsc.org/en/content/articlehtml/2017/SM/C6SM02718K>
- 97) Y Wang, J Kim, Z Gao, O Zandi, S Heo, P Banerjee, DJ Milliron*, "Disentangling Photochromism and Electrochromism by Blocking Hole Transfer at the Electrolyte Interface," *Chem. Mater.* **28** (2016), 7198-7202. <http://pubs.acs.org/doi/abs/10.1021/acs.chemmater.6b03793>
- 96) CJ Dahlman, G LeBlanc, A Bergerud, C Staller, J Adair, DJ Milliron*, "Electrochemically Induced Transformations of Vanadium Dioxide Nanocrystals," *Nano Lett.* **16** (2016), 6021-6027.
<http://pubs.acs.org/doi/abs/10.1021/acs.nanolett.6b01756>
- 95) BA Lindquist, RB Jadrich, DJ Milliron*, TM Truskett*, "On the Formation of Equilibrium Gels via a Macroscopic Bond Limitation," *J. Chem. Phys.* **145** (2016), 074906.
<http://scitation.aip.org/content/aip/journal/jcp/145/7/10.1063/1.4960773>
- 94) J Ephraim, D Lanigan, C Staller, DJ Milliron, E Thimsen*, "Transparent Conductive Oxide Nanocrystals Coated with Insulators by Atomic Layer Deposition," *Chem. Mater.* **28** (2016), 5549-5553.
<http://pubs.acs.org/doi/abs/10.1021/acs.chemmater.6b02414>
- 93) A Llordés*, Y Wang, A Fernandez-Martinez, P Xiao, T Lee, A Poulain, O Zandi, CA Saez Cabezas, G Henkelman, DJ Milliron*, "Linear Topology in Amorphous Metal Oxide Electrochromic Networks Obtained via Low-Temperature Solution Processing," *Nat. Mater.* **15** (2016), 1267-1273.
<http://www.nature.com/nmat/journal/v15/n12/full/nmat4734.html>
- 92) NB Saleh*, DJ Milliron, N Aich, LE Katz, HM Liljestrand, MJ Kirisits, "Importance of Doping, Dopant Distribution, and Defects on Electronic Band Structure Alteration of Metal Oxide Nanoparticles: Implications for Reactive Oxygen Species," *Sci. Tot. Environ.* **568** (2016), 926-932.
<http://www.sciencedirect.com/science/article/pii/S0048969716313195>
- 91) A Bergerud, SM Selbach, DJ Milliron*, "Oxygen Incorporation and Release in Metastable Bixbyite V₂O₃ Nanocrystals," *ACS Nano* **10** (2016), 6147-6155.
<http://pubs.acs.org/doi/abs/10.1021/acs.nano.6b02093>
- 90) J Kim, A Agrawal, F Krieg, A Bergerud, DJ Milliron*, "The Interplay of Shape and Crystalline Anisotropies in Plasmonic Semiconductor Nanocrystals," *Nano Lett.* **16** (2016), 3879-3884. *ACS Editors' Choice*. <http://pubs.acs.org/doi/abs/10.1021/acs.nanolett.6b01390>
- 89) S Mehra, A Bergerud, DJ Milliron, E Chan, A Salleo*, "A Core/Shell Approach to Dopant Incorporation and Shape Control in Colloidal Zinc Oxide Nanorods," *Chem. Mater.* **28** (2016), 3454-3461.
<http://pubs.acs.org/doi/abs/10.1021/acs.chemmater.6b00981>
- 88) EL Runnerstrom, A Bergerud, A Agrawal, RW Johns, CJ Dahlman, A Singh, SM Selbach, DJ Milliron*, "Defect Engineering in Plasmonic Metal Oxide Nanocrystals," *Nano Lett.* **16** (2016), 3390-3398.
<http://pubs.acs.org/doi/abs/10.1021/acs.nanolett.6b01171>
- 87) RW Johns, HA Bechtel, EL Runnerstrom, A Agrawal, SD Lounis, DJ Milliron*, "Direct Observation of Narrow mid-Infrared Plasmon Linewidths of Single Metal Oxide Nanocrystals," *Nat. Commun.* **7** (2016), 11583. <http://www.nature.com/ncomms/2016/160513/ncomms11583/full/ncomms11583.html>
- 86) Y Wang, EL Runnerstrom, DJ Milliron*, "Switchable Materials for Smart Windows," *Ann. Rev. Chem. Bio. Eng.* **7** (2016), 283-304. <http://www.annualreviews.org/doi/abs/10.1146/annurev-chembioeng-080615-034647>
- 85) GK Ong, TE Williams, A Singh, E Schaible, BA Helms, DJ Milliron*, "Ordering in Polymer Micelle-Directed Assemblies of Colloidal Nanocrystals," *Nano Lett.* **15** (2015), 8240-8244.
<http://pubs.acs.org/doi/10.1021/acs.nanolett.5b03765>

- 84) SM Meckler, C Li, WL Queen, TE Williams, JR Long, R Buonsanti, DJ Milliron, BA Helms*, "Sub-Micron Polymer-Zeolitic Imidazolate Framework Layered Hybrids via Controlled Chemical Transformation of Naked ZnO Nanocrystal Films," *Chem. Mater.* **27** (2015), 7673-7679. <http://pubs.acs.org/doi/abs/10.1021/acs.chemmater.5b03219>
- 83) A Singh, BA Lindquist, GK Ong, RB Jadrich, A Singh, H Ha, CJ Ellison, TM Truskett*, DJ Milliron*, "Linking Semiconductor Nanocrystals into Gel Networks through All-Inorganic Bridges," *Angew. Chem. Int. Ed.* **54** (2015), 14840-14844. <http://onlinelibrary.wiley.com/doi/10.1002/anie.201508641/abstract>
- 82) TM Mattox, A Agrawal, DJ Milliron*, "Low Temperature Synthesis and Surface Plasmon Resonance of Colloidal Lanthanum Hexaboride (LaB₆) Nanocrystals," *Chem. Mater.* **27** (2015), 6620-6624. <http://pubs.acs.org/doi/10.1021/acs.chemmater.5b02297>
- 81) EL Rosen, K Gilmore, AM Sawvel, AT Hammack, SE Doris, S Aloni, V Altoe, D Nordlund, T-C Weng, D Sokaras, BE Cohen, JJ Urban, DF Ogletree, DJ Milliron, D Prendergast, BA Helms*, "Chemically Directing *d*-Block Heterometallics to Nanocrystal Surfaces as Molecular Beacons of Surface Structure," *Chem. Sci.* **6** (2015), 6295-6304. <http://pubs.rsc.org/en/Content/ArticleLanding/2015/SC/C5SC01474C>
- 80) J Kim, GK Ong, Y Wang, G LeBlanc, TE Williams, TM Mattox, BA Helms, DJ Milliron*, "Nanocomposite Architecture for Rapid, Spectrally-Selective Electrochromic Modulation of Solar Transmittance," *Nano Lett.* **15** (2015), 5574-5579. <http://pubs.acs.org/doi/abs/10.1021/acs.nanolett.5b02197>
- 79) CJ Dahلمان, Y Tan, MA Marcus, DJ Milliron*, "Spectroelectrochemical Signatures of Capacitive Charging and Ion Insertion in Doped Anatase Titania Nanocrystals," *J. Am. Chem. Soc.* **137** (2015), 9160-9166. <http://pubs.acs.org/doi/abs/10.1021/jacs.5b04933>
- 78) HM Jeong, KM Choi, T Cheng, DK Lee, R Zhou, IW Ock, DJ Milliron, WA Goddard, JK Kang*, "Rescaling of Metal Oxide Nanocrystals for Energy Storage Having High Capacitance and Energy Density with Robust Cycle Life," *Proc. Nat. Acad. Sci.* **112** (2015), 7914-7919. <http://www.pnas.org/cgi/doi/10.1073/pnas.1503546112>
- 77) A Singh, A Singh, J Ciston, K Bustillo, D Nordlund, DJ Milliron*, "Synergistic Role of Dopants on the Morphology of Alloyed Copper Chalcogenide Nanocrystals," *J. Am. Chem. Soc.* **137** (2015), 6464-6467. <http://pubs.acs.org/doi/abs/10.1021/jacs.5b02880>
- 76) RJ Mendelsberg, PM McBride, JT Duong, MJ Bailey, A Llodes, DJ Milliron*, BA Helms*, "Dispersible Plasmonic Doped Metal Oxide Nanocrystal Sensors that Optically Track Redox Reactions in Aqueous Media with Single-Electron Sensitivity," *Adv. Opt. Mater.* **3** (2015), 1293-1300. <http://onlinelibrary.wiley.com/doi/10.1002/adom.201500208/abstract>
- 75) R Sharma, AM Sawvel, B Barton, A Dong, R Buonsanti, A Llodes, E Schaible, S Axnanda, Z Liu, JJ Urban, D Nordlund, C Kisielowski, DJ Milliron*, "Nanocrystal Superlattice Embedded within an Inorganic Semiconducting Matrix by In Situ Ligand Exchange: Fabrication and Morphology," *Chem. Mater.* **27** (2015), 2755-2758. <http://pubs.acs.org/doi/abs/10.1021/cm504716s>
- 74) N DeForest*, A Shehabi, J O'Donnell, G Garcia, J Greenblatt, ES Lee, S Selkowitz, DJ Milliron, "United States Energy and CO₂ Savings Potential from Deployment of Near-Infrared Electrochromic Window Glazings," *Build. Environ.* **89** (2015), 107-117. <http://www.sciencedirect.com/science/article/pii/S0360132315000785>
- 73) A Agrawal, I Kriegel, DJ Milliron*, "Shape-Dependent Field Enhancement and Plasmon Resonance of Oxide Nanocrystals," *J. Phys. Chem. C* **119** (2015), 6227-6238. <http://pubs.acs.org/doi/abs/10.1021/acs.jpcc.5b01648>
- 72) A Singh, C Coughlan, DJ Milliron, KR Ryan*, "Solution Synthesis and Assembly of Wurtzite derived Cu-In-Zn-S Nanorods with Tunable Composition and Band Gap," *Chem. Mater.* **27** (2015), 1517-1523. <http://pubs.acs.org/doi/abs/10.1021/cm5035613>
- 71) MV Kovalenko*, L Manna, A Cabot, Z Hens, DV Talapin, CR Kagan, VI Klimov, AL Rogach, P Reiss, DJ Milliron, P Guyot-Sionnest, G Konstantatos, WJ Parak, T Hyeon, B Korgel, CB Murray, W Heiss*, "Prospects of Nanoscience with Nanocrystals," *ACS Nano* **9** (2015), 1012-1057.

<http://pubs.acs.org/doi/abs/10.1021/nn506223h>

70) AM Schimpf, SD Lounis, EL Runnerstrom, DJ Milliron*, DR Gamelin*, "Redox Chemistries and Plasmon Energies of Photodoped In_2O_3 and Sn-Doped In_2O_3 (ITO) Nanocrystals," *J. Am. Chem. Soc.* **137** (2015), 518–524. *Editors' Choice*. <http://pubs.acs.org/doi/abs/10.1021/ja5116953>

69) JB Rivest, G Li, ID Sharp, JB Neaton, DJ Milliron*, "Phosphonic Acid Adsorbates Tune the Surface Potential of TiO_2 in Gas and Liquid Environment," *J. Phys. Chem. Lett.* **5** (2014), 2450-2454. <http://pubs.acs.org/doi/abs/10.1021/jz501050f>

68) EL Runnerstrom, A Llordes, SD Lounis, DJ Milliron*, "Nanostructured Electrochromic Smart Windows: Traditional Materials and NIR-Selective Plasmonic Nanocrystals," *Chem. Commun.* **50** (2014), 10555-10572. (invited Feature) <http://pubs.rsc.org/en/content/articlehtml/2014/cc/c4cc03109a>

67) SD Lounis, EL Runnerstrom, A Bergerud, D Nordlund, DJ Milliron*, "Influence of dopant distribution on the plasmonic properties of indium tin oxide nanocrystals," *J. Am. Chem. Soc.* **136** (2014), 7110-7116. <http://pubs.acs.org/doi/abs/10.1021/ja502541z>

66) SD Lounis, EL Runnerstrom, A Llordes, DJ Milliron*, "Defect chemistry and plasmon physics of colloidal metal oxide nanocrystals," *J. Phys. Chem. Lett.* **5** (2014), 1564-1574. (invited Perspective) <http://pubs.acs.org/doi/abs/10.1021/jz500440e>

65) EL Rosen, AM Sawvel, DJ Milliron, BA Helms*, "Influence of surface composition on electronic transport through naked nanocrystal networks," *Chem. Mater.* **26** (2014), 2214. <http://pubs.acs.org/doi/abs/10.1021/cm404149u>

64) IB Pehlivan*, R Marsal, E Pehlivan, EL Runnerstrom, DJ Milliron, CG Granqvist, GA Niklasson, "Electrochromic devices with polymer electrolytes functionalized by SiO_2 and In_2O_3 :Sn nanoparticles: Rapid coloring/bleaching dynamics and strong near-infrared absorption," *Sol. Energy Mater. Sol. Cells* **126** (2014), 241. <http://www.sciencedirect.com/science/article/pii/S092702481300295X>

63) DJ Gargas, EM Chan, AD Ostrowski, S Aloni, V Altoe, ES Barnard, B Sanii, JJ Urban, DJ Milliron, BE Cohen*, PJ Schuck*, "Engineering bright sub-10-nm upconverting nanocrystals for single-molecule imaging," *Nature Nano.* **9** (2014), 300. <http://www.nature.com/nnano/journal/v9/n4/full/nnano.2014.29.html>

62) TE Williams, CM Chang, EL Rosen, G Garcia, EL Runnerstrom, BL Williams, B Koo, R Buonsanti, DJ Milliron*, BA Helms*, "NIR-selective electrochromic heteromaterial frameworks: A platform to understand mesoscale transport phenomena in solid-state electrochemical devices," *J. Mater. Chem. C* **2** (2014), 3328. <http://pubs.rsc.org/en/content/articlepdf/2014/tc/c3tc32247e>

61) TM Mattox, A Bergerud, A Agrawal, DJ Milliron*, "Influence of shape on the surface plasmon resonance of tungsten bronze nanocrystals," *Chem. Mater.* **26** (2014), 1779-1784. <http://pubs.acs.org/doi/pdf/10.1021/cm4030638>

60) DJ Milliron*, R Buonsanti, A Llordes, BA Helms, "Constructing functional mesostructured materials from colloidal nanocrystal building blocks," *Acc. Chem. Res.* **47** (2014), 236. <http://pubs.acs.org/doi/pdf/10.1021/ar400133k>

59) A Dong*, Y Jiao, DJ Milliron, "Electronically coupled nanocrystal superlattice films by in situ ligand exchange at the liquid-air interface," *ACS Nano* **7** (2013), 10978-10984. <http://pubs.acs.org/doi/pdf/10.1021/nn404566b>

58) L De Trizio, R Buonsanti, AM Schimpf, A Llordes, DR Gamelin, R Simonutti, DJ Milliron*, "Nb-doped colloidal TiO_2 nanocrystals with tunable infrared absorption," *Chem. Mater.* **25** (2013), 3383-3390. <http://pubs.acs.org/doi/pdf/10.1021/cm402396c>

57) A Llordes, G Garcia, J Gazquez, DJ Milliron*, "Tunable near-infrared and visible light transmittance in nanocrystal-in-glass composites," *Nature* **500** (2013), 323-326. <http://www.nature.com/nature/journal/v500/n7462/full/nature12398.html>

56) A Bergerud, R Buonsanti, JL Jordan-Sweet, DJ Milliron*, "Synthesis and phase stability of metastable bixbyite V_2O_3 colloidal nanocrystals," *Chem. Mater.* **25** (2013), 3172.

<http://pubs.acs.org/doi/pdf/10.1021/cm401530t>

- 55) A Shehabi*, N DeForest, A McNeil, E Masanet, J Greenblatt, ES Lee, G Masson, BA Helms, DJ Milliron, "U.S. energy savings potential from dynamic daylighting control glazings," *Energy Build.* **66** (2013), 415. <http://www.sciencedirect.com/science/article/pii/S0378778813004015>
- 54) C Kim, R Buonsanti, R Yaylian, DJ Milliron, J Cabana*, "Carbon-free TiO₂ battery electrodes enabled by morphological control at the nanoscale," *Adv. Ener. Mater.* **3** (2013), 1286. <http://onlinelibrary.wiley.com/doi/10.1002/aenm.201300264/abstract>
- 53) JB Rivest, R Buonsanti, TE Pick, L Zhu, E Lim, C Clavero, E Schaible, BA Helms*, DJ Milliron*, "Evolution of ordered metal chalcogenide architectures through chemical transformations," *J. Am. Chem. Soc.* **135** (2013), 7446-7449. <http://pubs.acs.org/doi/pdf/10.1021/ja403071w>
- 52) L Xu, C Kim, AK Shukla, A Dong, TM Mattox, DJ Milliron, J Cabana*, "Monodisperse Sn nanocrystals as platform for the study of mechanical damage during electrochemical reactions with Li," *Nano Lett.* **13** (2013), 1800. <http://pubs.acs.org/doi/pdf/10.1021/nl400418c>
- 51) R Buonsanti*, DJ Milliron*, "Chemistry of doped colloidal nanocrystals," *Chem. Mater.* **25**, (2013), 1305. *Invited review* <http://pubs.acs.org/doi/pdf/10.1021/cm304104m>
- 50) N DeForest*, A Shehabi, G Garcia, J Greenblatt, E Masanet, ES Lee, S Selkowitz, DJ Milliron, "Regional performance targets for transparent near-infrared switching electrochromic window glazings," *Build. Environ.* **61** (2013), 160. <http://www.sciencedirect.com/science/article/pii/S0360132312003265>
- 49) G Garcia, R Buonsanti, A Llordes, EL Runnerstrom, A Bergerud, DJ Milliron*, "Near infrared spectrally selective plasmonic electrochromic thin films," *Adv. Opt. Mater.* **1** (2013), 215. <http://onlinelibrary.wiley.com/doi/10.1002/adom.201200051/full>
- 48) IE Rauda, LC Saldarriaga-Lopez, BA Helms, LT Schelhas, D Membreno, DJ Milliron, SH Tolbert*, "Nanoporous semiconductors synthesized through polymer templating of ligand-stripped CdSe nanocrystals," *Adv. Mater.* **25** (2013), 1315. <http://onlinelibrary.wiley.com/doi/10.1002/adma.201203309/abstract>
- 47) AM Schimpf, S Ochsenbein, R Buonsanti, DJ Milliron*, DR Gamelin*, "Comparison of extra electrons in colloidal *n*-type Al³⁺-doped and photochemically reduced ZnO nanocrystals," *Chem. Commun.* **48** (2012), 9352.
- 46) IE Rauda, R Buonsanti, LC Saldarriaga-Lopez, K Benjauthrit, LT Schelhas, M Stefik, V Augustyn, J Ko, B Dunn, U Wiesner, DJ Milliron, SH Tolbert*, "General method for the synthesis of hierarchical nanocrystal-based mesoporous materials," *ACS Nano* **6** (2012), 6386. <http://pubs.acs.org/doi/pdf/10.1021/nn302789r>
- 45) R Buonsanti, TE Pick, N Krins, TJ Richardson, BA Helms*, DJ Milliron*, "Assembly of ligand-stripped nanocrystals into precisely controlled mesoporous architectures," *Nano Lett.* **12** (2012), 3872-3877. <https://pubs.acs.org/doi/10.1021/nl302206s>
- 44) EM Chan*, G Han, JD Goldberg, DJ Gargas, AD Ostrowski, PJ Schuck, BE Cohen, DJ Milliron*, "Combinatorial discovery of lanthanide-doped nanocrystals with spectrally pure upconverted emission," *Nano Lett.* **12** (2012), 3839. <http://pubs.acs.org/doi/pdf/10.1021/nl3017994>
- 43) MA Caldwell, RGD Jeyasingh, H-SP Wong, DJ Milliron*, "Nanoscale phase change memory materials," *Nanoscale* **4** (2012), 4382. *Invited*
- 42) JT Duong, MJ Bailey, PM McBride, R Buonsanti, TE Pick, EL Rosen, DJ Milliron, BA Helms*, "Efficient polymer passivation of ligand-stripped nanocrystal surfaces," *J. Poly. Sci. A: Poly. Chem.* **50** (2012), 3719-3727. <http://onlinelibrary.wiley.com/doi/10.1002/pola.26178/abstract>
- 41) EM Chan*, DJ Gargas, PJ Schuck, DJ Milliron, "Concentrating and recycling energy in lanthanide codopants for efficient and spectrally pure emission: The case of NaYF₄:Er³⁺/Tm³⁺ upconverting nanocrystals," *J. Phys. Chem. B* **116** (2012), 10561.
- 40) IB Pehlivan*, EL Runnerstrom, S-Y Li, GA Niklasson, DJ Milliron, CG Granqvist, "A polymer electrolyte with high luminous transmittance and low solar throughput: Polyethyleneimine-lithium

- bis(trifluoromethylsulfonyl) imide with $\text{In}_2\text{O}_3\text{:Sn}$ nanocrystals," *Appl. Phys. Lett.* **100** (2012), 241902.
- 39) RJ Mendelsberg, G Garcia, H Li, L Manna, DJ Milliron*, "Understanding the plasmon resonance in ensembles of degenerately doped semiconductor nanocrystals," *J. Phys. Chem. C* **116** (2012), 12226-12231. <http://pubs.acs.org/doi/abs/10.1021/jp302732s>.
- 38) RJ Mendelsberg, G Garcia, DJ Milliron*, "Extracting reliable electronic properties from transmission spectra of metal oxide thin films and nanocrystal films by careful application of Drude theory," *J. Appl. Phys.* **111** (2012), 063515. <https://aip.scitation.org/doi/abs/10.1063/1.3695996>
- 37) AD Ostrowski, EM Chan, DJ Gargas, EM Katz, G Han, PJ Schuck, DJ Milliron, BE Cohen*, "Controlled synthesis of bright and biocompatible lanthanide-doped upconverting nanoparticles," *ACS Nano* **6** (2012), 2686.
- 36) EL Rosen, R Buonsanti, A Llordes, AM Sawvel, DJ Milliron, BA Helms*, "Exceptionally mild reactive stripping of native ligands from nanocrystal surfaces using Meerwein's salt," *Angew. Chem. Int. Ed.* **51** (2012), 684-689. <https://onlinelibrary.wiley.com/doi/abs/10.1002/anie.201105996>
- 35) RY Wang, R Tangirala, S Raoux, JL Jordan-Sweet, DJ Milliron*, "Ionic and electronic transport in Ag_2S nanocrystal – GeS_2 matrix composites with size-controlled Ag_2S nanocrystals," *Adv. Mater.* **24** (2012), 99-103. <http://onlinelibrary.wiley.com/doi/10.1002/adma.201102623/abstract>
- 34) R Buonsanti, A Llordes, S Aloni, BA Helms, DJ Milliron*, "Tunable infrared absorption and visible transparency of colloidal aluminum-doped zinc oxide nanocrystals," *Nano Lett.* **11** (2011), 4706-4710. <http://pubs.acs.org/doi/abs/10.1021/nl203030f>
- 33) G Garcia, R Buonsanti, EL Runnerstrom, RJ Mendelsberg, A Llordes, A Anders, TJ Richardson, DJ Milliron*, "Dynamically modulating the surface plasmon resonance of doped semiconductor nanocrystals," *Nano Lett.* **11** (2011), 4415-4420. <http://pubs.acs.org/doi/abs/10.1021/nl202597n> *Highlighted by Science Editors' Choice.*
- 32) A Llordes, AT Hammack, R Buonsanti, R Tangirala, S Aloni, BA Helms, DJ Milliron*, "Polyoxometalates and colloidal nanocrystals as building blocks for metal oxide nanocomposite films," *J. Mater. Chem.* **21** (2011), 11631-11638. *Invited.* <http://pubs.rsc.org/en/Content/ArticleLanding/2011/JM/C1JM10514K>
- 31) RY Wang, MA Caldwell, RGD Jeyasingh, S Aloni, RM Shelby, HSP Wong, and DJ Milliron*, "Electronic and Optical Switching of Solution-Phase Deposited SnSe_2 Phase Change Memory Material," *J. Appl. Phys.* **109** (2011), 113506.
- 30) RJ Mendelsberg, SHN Lim, YK Zhu, J Wallig, DJ Milliron, A Anders*, "Achieving high mobility ZnO:Al at very high growth rates by dc filtered cathodic arc deposition," *J. Phys. D*, **44** (2011), 232003. *Chosen for highlights of 2011*
- 29) MJ Polking, JJ Urban, DJ Milliron, H Zheng, E Chan, MA Caldwell, S Raoux, CF Kisielowski, JW Ager, R Ramesh*, and AP Alivisatos*, "Size-Dependent Polar Ordering in Colloidal GeTe Nanocrystals," *Nano Lett.* **11** (2011), 1147.
- 28) MA Caldwell, AE Albers, SC Levy, TE Pick, BE Cohen, BA Helms*, DJ Milliron*, "Driving oxygen coordinated ligand exchange at nanocrystal surfaces using trialkylsilylated chalcogenides," *Chem. Commun.* **47** (2011), 556. *Invited* <http://pubs.rsc.org/en/Content/ArticleLanding/2011/CC/C0CC02220A>
- 27) MA Caldwell, B Haynor, S Aloni, DF Ogletree, HSP Wong, JJ Urban*, DJ Milliron*, "Spectroscopic Evidence for Exceptional Thermal Contribution to Electron-Beam Induced Fragmentation," *J. Phys. Chem. C* **114** (2010), 22064.
- 26) Q Dai, M Lam, S Swanson, R-HR Yu, DJ Milliron, T Topuria, P-O Jubert*, A Nelson*, "Monodisperse cobalt ferrite nanomagnets with uniform silica coatings," *Langmuir* **26** (2010), 17546.
- 25) EM Chan, C Xu, AW Mao, G Han, JS Owen, BE Cohen, DJ Milliron*, "Reproducible, high-throughput synthesis of colloidal nanocrystals for optimization in multidimensional parameter space," *Nano Lett.* **10** (2010), 1874-1885. <http://pubs.acs.org/doi/abs/10.1021/nl100669s> *Highlighted by Materials Today and Nanotechnology Alert.*

- 24) R Tangirala, JL Baker, AP Alivisatos, DJ Milliron*, "Modular inorganic nanocomposites by conversion of nanocrystal superlattices," *Angew. Chem. Int. Ed.* **49** (2010), 2878-2882. *Highlighted by Chem. Eng. Prog.* <http://onlinelibrary.wiley.com/doi/10.1002/anie.200906642/pdf>
- 23) RY Wang, J Feser, X Gu, KM Yu, RA Segalman, A Majumdar, DJ Milliron*, JJ Urban*, "A Universal and Solution-Processable Precursor to Bismuth Chalcogenide Thermoelectrics," *Chem. Mater.* **22** (2010), 1943.
- 22) MA Caldwell, S Raoux, RY Wang, HSP Wong*, DJ Milliron*, "Synthesis and size-dependent crystallization of colloidal germanium telluride nanoparticles," *J. Mater. Chem.* **20** (2010), 1285. *Invited.* <http://pubs.rsc.org/en/content/articlelanding/2010/jm/b917024c>
- 21) HR Moon, JJ Urban, DJ Milliron*, "Size-controlled synthesis and optical properties of monodisperse colloidal magnesium oxide nanocrystals," *Angew. Chem. Int. Ed.* **48** (2009), 6278. *Selected by the editor as a "hot paper;" highlighted by Photonics Spectra.*
- 20) S Wu, G Han, DJ Milliron, S Aloni, V Altoe, DV Talapin, BE Cohen*, PJ Schuck*, "Non-blinking and photostable upconverted luminescence from single lanthanide-doped nanocrystals," *Proc. Natl. Acad. Sci.* **106** (2009), 10917.
- 19) Y Zhang, S Raoux, D Krebs, LE Krupp, T Topuria, MA Caldwell, DJ Milliron, A Kellock, PM Rice, JL Jordan-Sweet, HSP Wong*, "Phase change nanodots patterned using a self-assembled polymer lithography and crystallization analysis," *J. Appl. Phys.* **7** (2008), 074312.
- 18) DJ Milliron*, MA Caldwell, HSP Wong, "Synthesis of metal chalcogenide nanodot arrays using block copolymer-derived nanoreactors," *Nano Lett.* **7** (2007), 3504-3507.
- 17) Y Zhang, HSP Wong*, S Raoux, JN Cha, CT Rettner, LE Krupp, T Topuria, DJ Milliron, PM Rice, JL Jordan-Sweet, "Phase change nanodot arrays fabricated using a self-assembly diblock copolymer approach," *Appl. Phys. Lett.* **91** (2007), 013104.
- 16) DJ Milliron*, S Raoux, RM Shelby, J Jordan-Sweet, "Solution-phase deposition and nanopatterning of GeSbSe phase change materials," *Nature Mater.* **6** (2007), 352. <http://www.nature.com/nmat/journal/v6/n5/abs/nmat1887.html>
- 15) DJ Milliron*, DB Mitzi, M Copel, CE Murray, "Solution-processed metal chalcogenide films for p-type transistors," *Chem. Mater.* **18** (2006), 587.
- 14) P Peng, DJ Milliron, SM Hughes, JC Johnson, AP Alivisatos, RJ Saykally*, "Femtosecond spectroscopy of carrier relaxation dynamics in type II CdSe/CdTe tetrapod heteronanostructures," *Nano Lett.* **5** (2005), 587.
- 13) DJ Milliron, I Gur, AP Alivisatos*, "Hybrid organic-nanocrystal solar cells," *MRS Bull.* **30** (2005), 41.
- 12) DJ Milliron, SM Hughes, Y Cui, L Manna, J Li, LW Wang, AP Alivisatos*, "Colloidal nanocrystal heterostructures with linear and branched topology," *Nature* **430** (2004), 190.
- 11) L Manna, DJ Milliron, A Meisel, EC Scher, AP Alivisatos*, "Controlled growth of tetrapod-branched inorganic nanocrystals," *Nature Mater.* **2** (2003), 382.
- 10) WU Huynh, JJ Dittmer, N Teclerian, DJ Milliron, AP Alivisatos*, KWJ Barnham, "Charge transport in hybrid nanorod-polymer composite photovoltaic cells," *Phys. Rev. B* **67** (2003), 115316.
- 9) DJ Milliron, C Pitois, C Edder, AP Alivisatos*, JMJ Fréchet*, "Electroactive surfactant designed to mediate charge transfer between CdSe nanocrystals and organic semiconductors," *Adv. Mater.* **15** (2003), 58.
- 8) A Striolo, J Ward, JM Prausnitz, WJ Parak, D Zanchet, D Gerion, DJ Milliron, AP Alivisatos*, "Molecular weight, osmotic second virial coefficient, and extinction coefficient of colloidal CdSe nanocrystals," *J. Phys. Chem. B* **106** (2002), 5500.
- 7) J Schwartz*, ES Gawalt, G Lu, DJ Milliron, KL Purvis, SJ Woodson, SL Bernasek, AB Bocarsly, SK VanderKam, "Organometallic chemistry at the interface with materials science," *Polyhedron* **19** (2000), 505.

- 6) DJ Milliron, IG Hill, A Kahn, J Schwartz*, "Surface oxidation activates indium tin oxide for hole injection," *J. Appl. Phys.* **87** (2000), 572.
- 5) IG Hill, D Milliron, J Schwartz, A Kahn*, "Organic semiconductor interfaces: Electronic structure and transport properties," *Appl. Surf. Sci.* **166** (2000), 354.
- 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.
- 3) JP Chen, D Markiewicz, VY Lee, G Klaerner, RD Miller, JC Scott*, "Improved efficiencies of light-emitting diodes through incorporation of charge transporting components in tri-block polymers," *Synth. Met.* (1999) **107**, 203.
- 2) G Klaerner, JI Lee, VY Lee, E Chan, JP Chen, A Nelson, D Markiewicz, R Siemens, JC Scott, RD Miller*, "Cross-linkable polymers based on dialkylfluorenes," *Chem. Mater.* **11** (1999), 1800.
- 1) ME Hawley*, GW Brown, DJ Markiewicz, F Spaepen, EP Barth, "Magnetic force microscopy observation of the magnetic structure of deformation induced shear bands in amorphous $\text{Fe}_{80}\text{B}_{16}\text{Si}_4$," *J. Magn. Magn. Mater.* **190** (1998), 89.

Editorial & Commentary:

- 5) RB Jadrach, DJ Milliron, TM Truskett*, "Colloidal gels," *J. Chem. Phys.* **159** (2023), 090401. <https://doi.org/10.1063/5.0170798>
- 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:

- 19) DJ Milliron, A Llordes, Y Wang, G LeBlanc, "Method for Producing Electrochromic Films by Low Temperature Chemical Condensation of Polyoxometalates," US10585322, 2020.
- 18) DJ Milliron, BH Kim, "Nanostructured Conducting Films with a Heterogeneous Dopant Distribution and Methods of Making and Use Thereof," US10515736, 2019.
- 17) DJ Milliron, A Llordes, R Buonsanti, G Garcia, "Electrochromic Nanocomposite Films," US9939662, 2018.
- 16) DJ Milliron, B Koo, G Garcia, CJ Dahlgren, 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.
- 3) MA Caldwell, DJ Milliron, "Inorganic metal chalcogen cluster precursors and methods for forming colloidal metal chalcogenide nanoparticles using the same," US7563430, 2009.
- 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:

- 3) DJ Milliron, GK Ong, "Composite Films and Methods of Making and Use Thereof," 2022.
- 2) DJ Milliron, GK Ong, C Saez Cabezas, HC Lu, "Porous Electrochromic Niobium Oxide Films and Methods of Making and Use Thereof", 2021.
- 1) DJ Milliron, J Kim, "Electrochromic Electrodes and Methods of Making and Use Thereof," 2019.

Honors and Awards:

- MRS Medal (2023)
- AIChE Nanoscale Science and Engineering Forum (NSEF) Award (2023)
- Kurt Wohl Memorial Lecture, University of Delaware, Chemical & Biomolecular Engineering (2023)
- Senior Member, National Academy of Inventors (2023)
- Amol Ajinkya Memorial Lecture, University at Buffalo, Chemical & Biological Engineering (2022)
- Thiele Lecture, University of Notre Dame, Chemical & Biomolecular Engineering (2022)
- Full Member, Sigma Xi (2022)
- ACS Inorganic Nanoscience Award (2019)
- Edith and Peter O'Donnell Award in Engineering, TAMEST (2018)

- Norman Hackerman Award, Welch Foundation (2017)
- Sloan Research Fellowship (2016)
- Benjamin P. Boussert Lecture, Louisiana State University, Chemistry (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)
- EPCOS 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:

- Founder and Chief Scientific Officer, Celadyne Technologies (2018 -)
- 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:

Advanced Thermodynamics	UT Austin CHE 387K
Materials Physics	UT Austin CHE 384T
Chemical Engineering Materials	UT Austin CHE 350
Introduction to Chemical Engineering	UT Austin CHE 102
General Chemistry	Graduate Student Instructor, UCB Chemistry
Statistical Mechanics and Thermodynamics	Graduate Student Instructor, UCB Chemistry

Graduate and Postdoctoral Advisors and Advisees:

First name	Last name	Position	Co-advisor	Current Affiliation
Jay	Bender	student	J Resasco	UT Austin
Marina (Wren)	Berry	student		UT Austin
William	Brackett	student	TM Truskett	UT Austin
Diana	Conrad	student	EV Anslyn	UT Austin

Jiho	Kang	postdoc		UT Austin
Charles (Kofi)	Ofori	student	TM Truskett	UT Austin
Victor	Segui Barragan	student		UT Austin
Akshat	Singh	student	J Resasco	UT Austin
Rebecca	Tafoya	student		UT Austin
Tanner	Wilcoxson	student	TM Truskett	UT Austin
Woo Je	Chang	postdoc		UT Austin
Daniel	Davies	postdoc		UT Austin
Yujin	Park	postdoc		UT Austin
Benjamin	Roman	postdoc		UT Austin
Wu	Zhang	postdoc		UT Austin
Ziyi	Zhang	postdoc		UT Austin
Ankit	Agrawal	student		Quantumscape
Amy	Bergerud	student		Niron Magnetics
Marissa	Carey (Caldwell)	student	H-SP Wong, Stanford	Medtronic
Shin Hum	Cho	student		Keimyung University
Clayton	Dahlman	student		Quantumscape
Manuel	Dominguez	student	EV Anslyn, UT Austin	3M
Guillermo	Garcia	student		Samsar
Stephen	Gibbs	student		Bruker
Allison	Green	student	TM Truskett	Bain
Sungyeon	Heo	student		SeoulTech University
Robert	Johns	student		Micron
Kihoon	Kim	student		Argonne Natl Lab
Vikram	Lakhanpal	student		
Sebastien	Lounis	student		Antora
Hsin-Che	Lu	student		Ionblox
Gary	Ong	student		Celadyne Technologies
Lauren	Reimnitz	student		Novacentrix
Evan	Runnerstrom	student		Army Research Office
Camila	Saez Cabezas	student	TM Truskett, UT Austin	Dow
Sofia	Shubert-Zuleta	student		Dow
Corey	Staller	student		Celadyne Technologies
Benjamin	Zydlowski	student		Intel
Progna	Banerjee	postdoc		Argonne Natl Lab
Raffaella	Buonsanti	postdoc		EPFL
Emory	Chan	postdoc		LBNL
Xing Yee	Gan	postdoc		Canon Nanotechnologies
Sandeep	Ghosh	postdoc		Applied Materials
Gang	Han	postdoc	BE Cohen, LBNL	Univ. of Massachusetts
Molly	Jhong	postdoc		Dow
Byung Hyo	Kim	postdoc		Soongsil University
Jongwook	Kim	postdoc		Ecole Polytechnique
Natacha	Krins	postdoc	TJ Richardson, J Cabana, LBNL	Sorbonne Univ.
Gabriel	LeBlanc	postdoc		Univ. of Tulsa
Beth	Lindquist	postdoc	TM Truskett, UT Austin	LANL
Anna	Llordes	postdoc		Fuelium, Spain
Rueben	Mendelsberg	postdoc	A Anders, LBNL	Freeform Future
Hoi Ri	Moon	postdoc	JJ Urban, LBNL	UNIST

Varada	Palakkal	postdoc		Sublime Systems
Jongsik	Park	postdoc		Kyonggi University
Oun Ho	Park	postdoc		Applied Materials
Jessy	Rivest	postdoc		Khosla Ventures
Evelyn	Davies	postdoc	BA Helms, LBNL	LBNL
April	Sawvel	postdoc	BA Helms, LBNL	LLNL
Richa	Sharma	postdoc		Schlumberger Research
Amita	Singh	postdoc		Quantumscape
Ajay	Singh	postdoc		STMicroelectronics
Yizheng	Tan	postdoc		Applied Materials
Bharat	Tandon	postdoc		IIT-Roorkee
Ravisubhash	Tangirala	postdoc		Blue Current
Robert	Wang	postdoc		Arizona State Univ.
Yang	Wang	postdoc		EMD
Omid	Zandi	postdoc		Boston Consulting Group
Renjia	Zhou	postdoc		Analog Devices
A. Paul	Alivisatos	PhD advisor		U Chicago
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 Divisions of Materials Research and 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 Laboratories
- Cyclotron Road, Lawrence Berkeley National Laboratory

Journal Editorial Activities:

- *Nano Letters*, Associate Editor (2015 - 2020)
- *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:

08.2024	Chemical Coding at the Atomic Scale, Max Planck Institute, Dresden
08.2024	American Chemical Society National Meeting, Denver
08.2024	International Soft Matter Conference, Raleigh
06.2024	Gordon Research Conference, Noble Metal Nanoparticles
03.2024	American Chemical Society National Meeting, New Orleans (3)
01.2024	University of California, Riverside, Materials Science & Engineering
11.2023	Materials Research Society National Meeting, Boston

11.2023 Austin Community College
11.2023 American Institute of Chemical Engineers National Meeting, Orlando
10.2023 Nanocrystal Surfaces and Defects, Beilstein Nanotechnology Symposium, Rüdeshheim
09.2023 University of Oklahoma, School of Sustainable Chemical, Biological, and Materials Engineering
09.2023 University of Delaware, Chemical & Biomolecular Engineering, Kurt Wohl Memorial Lecture
09.2023 University of California, Berkeley, Nanoscience seminar
08.2023 American Chemical Society National Meeting, San Francisco
07.2023 Nanoscience with Nanocrystals (NaNaX), Klosterneuberg, Austria
04.2023 Materials Research Society National Meeting, San Francisco (2)
02.2023 Gordon Research Conference, Nanomaterials for Energy Applications
02.2023 Designing Soft Matter In & Out of Equilibrium, Lorentz Center Workshop, Leiden
01.2023 Texas A&M University, Materials Science & Engineering
11.2022 University of Illinois Urbana-Champaign, Chemical & Biomolecular Engineering
10.2022 University at Buffalo, Chemical & Biological Engineering, Amol Ajinkya Memorial Lecture
09.2022 University of Florida, Chemical Engineering
08.2022 University of Notre Dame, Chemical & Biomolecular Engineering, Thiele Lecture
08.2022 Army Research Office
08.2022 Tokyo Electron
08.2022 Texas Soft Matter, Austin
07.2022 Gordon Research Conference, Colloidal Semiconductor Nanocrystals
07.2022 Gordon Research Seminar, Colloidal Semiconductor Nanocrystals
06.2022 Princeton University, Chemistry
05.2022 University of California, Santa Barbara, Chemical Engineering
04.2022 University of Southern California, Chemistry
03.2022 American Chemical Society, Inorganic Division Periodic Table Talks
02.2022 Duke University, Mechanical Engineering & Materials Science
01.2022 Auburn University, Chemistry
01.2022 Penn State University, Chemical Engineering
12.2021 Materials Research Society National Meeting, Boston
11.2021 University of Minnesota, Chemistry
10.2021 Columbia University, Chemistry
10.2021 nanoGe Conference, Nanocrystal Fundamentals
10.2021 University of Delaware, Chemistry & Biochemistry
09.2021 New York University, Chemical Engineering
09.2021 Rensselaer Polytechnic Institute, Chemical Engineering
09.2021 Virginia Commonwealth University, Chemical Engineering
06.2021 American Chemical Society Colloids and Surface Science
05.2021 Naval Research Laboratory
03.2021 Applied Nanotechnology and Nanoscience International Conference
03.2021 nanoGe Conference, Chemistry of Nanomaterials
03.2021 News in Nanocrystals, virtual symposium
11.2020 University of Hamburg, Department of Chemistry
10.2020 nanoGe Conference, Infrared Nanocrystals
10.2020 Stanford University, Chemical Engineering
09.2020 Texas State University
06.2020 University of Toronto
10.2019 University of California, San Diego, Nanoengineering
08.2019 American Chemical Society National Meeting, San Diego (award lecture)
06.2019 American Chemical Society Colloids and Surface Science, Atlanta
04.2019 American Chemical Society National Meeting, Orlando
03.2019 Cotton Medal Symposium, Texas A&M, Chemistry

12.2018 Machine Learning and Reverse Engineering of Soft Matter, Leiden
07.2018 Gordon Research Conference, Plasmonics and Nanophotonics, Maine
05.2018 University of Chicago, Chemistry
04.2018 Harvard University and MIT, Inorganic Chemistry
03.2018 American Chemical Society National Meeting, New Orleans (2)
12.2017 Materials Research Society National Meeting, Boston (2)
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)
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 (2)
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 (2 talks)
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 Maximilian 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, Ithaca
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
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