

# Clayton Dahlman

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## EDUCATION

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- UNIVERSITY OF TEXAS, AUSTIN Austin, TX  
*McKetta Department of Chemical Engineering* 2014-present
- Doctor of Philosophy\*, Chemical Engineering, May 2017 (expected)
- UNIVERSITY OF CALIFORNIA, BERKELEY Berkeley, CA  
*Department of Chemical and Biomolecular Engineering* 2012-2014
- Master of Science\*, Chemical Engineering, May 2014
- \* Transferred to University of Texas, Austin with advisor Prof. Delia Milliron to complete PhD
- COLUMBIA UNIVERSITY New York, NY  
*Fu Foundation School of Engineering and Applied Science* 2007-2011
- Magna Cum Laude
  - Bachelor of Science, Chemical Engineering, May 2011
  - Minor in Materials Science

## RESEARCH

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- UT AUSTIN, UC BERKELEY & LAWRENCE BERKELEY NATIONAL LABORATORY Austin, TX  
*PhD Candidate: Advised by Prof. Delia Milliron* &  
Berkeley, CA
- Studying optical and electrochemical properties of transition metal oxide nanocrystals with applications in energy conversion, optics and electrochromic devices. 2012-present
  - Co-Advised by Prof. Jeffrey Reimer while at UC Berkeley.
- COLUMBIA UNIVERSITY DEPARTMENT OF MATERIALS SCIENCE New York, NY  
*Undergraduate Researcher: Advised by Prof. Irving Herman* 2008-2012
- Studied the surface chemistry of ligated metal oxide nanocrystals and self-assembly of nanocrystals into ordered mesoporous superlattices.
- COLUMBIA UNIVERSITY ARPA-E COLLABORATION New York, NY  
*Undergraduate Researcher: Advised by Prof. Scott Banta and Michael Hill* 2011
- Developed a process for a regenerative bio-fuel cell producing isobutanol from ammonia, CO<sub>2</sub> and electric current with nitrogen-fixing bacteria.

## AWARDS & HONORS

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- National Science Foundation Graduate Research Fellowship 2012-2015
- Cockrell School of Engineering Fellowship, *UT Austin* 2014-current
- Graduate Dean's Prestigious Fellowship Supplement, *UT Austin* 2015
- CU Scholars Summer Enhancement Fellow, *Columbia University* 2010
- C.P. Davis Engineering Scholar, *Columbia University* 2007-2011
- Academic All-Ivy Athlete, *Columbia University Varsity Squash* 2011
- K.W. Davis Projects for Peace award, 'Piece it Together' (*ELiTE, Inc.*) 2009
- Columbia University Earth Institute Earth Clinic award, *ELiTE, Inc.* 2010
- US Environmental Protection Agency P3 Phase-I award, *CU-EWB* 2010

## WORK & TEACHING

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### UNIVERSITY OF TEXAS, AUSTIN

*Teaching Assistant, CHE350: Chemical Engineering Materials, Prof. Delia Milliron*

- Teaching assistant for upper-level undergrad materials science survey course.
- Assisted with curriculum development, exam preparation, homework design, lectures, discussion sections and other activities.

*Fall 2014*

*Teaching Assistant, CHE384T: Materials Physics, Prof. Delia Milliron*

- Teaching assistant for graduate level materials chemistry and solid-state physics course.
- Assisted with curriculum development, exam preparation, homework design, lectures, discussion sections and other activities.

*Spring 2016*

### EMERGING LEADERS IN TECHNOLOGY AND ENGINEERING, INC.

*Co-founder and Executive Vice-President*

- 501(c)3 non-profit that inspires and empowers students from under-resourced communities in New York City, Ghana, and elsewhere to develop creative problem solving skills and social responsibility through engineering and science education.
- Duties have included teaching, entrepreneurial management, fund-raising, marketing, educational assessment, curriculum design and tech development.
- Currently serving as Vice-President and Secretary on the Board of Directors.

*2009-present*

### COLUMBIA CENTER FOR INTEGRATED SCIENCE AND ENGINEERING

*Assistant Supervisor of CISE Clean Room*

- Supervision and maintenance of equipment, safety protocol and user training.

*2011-2012*

## PUBLICATIONS

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- C. J. Dahlman, G. LeBlanc, A. Bergerud, C. Staller, J. Adair, D. J. Milliron. "Electrochemically Induced Transformations of Vanadium Dioxide Nanocrystals", *Nano Lett.*, **2016**, Article ASAP, DOI: 10.1021/acs.nanolett.6b01756
- E. L. Runnerstrom, A. Bergerud, A. Agrawal, R. W. Johns, C. J. Dahlman, A. Singh, S. M. Selbach, D. J. Milliron. "Defect Engineering in Plasmonic Metal Oxide Nanocrystals", *Nano Lett.*, **2016**, *16* (5), 3390–3398
- C. J. Dahlman, Y. Tan, M. A. Marcus, D. J. Milliron. "Spectroelectrochemical Signatures of Capacitive Charging and Ion Insertion in Doped Anatase Titania Nanocrystals", *J. Am. Chem. Soc.*, **2015**, *137* (28), 9160-9166.
- C. Lu, A. J. Akey, C. J. Dahlman, D. Zhang, and I. P. Herman. "Resolving the Growth of 3D Colloidal Nanoparticle Superlattices by Real-Time Small-Angle X-ray Scattering", *J. Am. Chem. Soc.*, **2012**, *134* (45), 18732-18738.

## PRESENTATIONS

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- C. J. Dahlman, A. J. Bergerud, G. Leblanc, C. Staller, J. Adair, D. J. Milliron. “Metal-Insulator Transitions in VO<sub>2</sub> Nanocrystals by Electrochemical Charging”, *Gordon Research Conference (GRC): Colloidal Semiconductor Nanocrystals*, **30 July – 5 August 2016**, Poster. Mt. Snow, VT
- C. J. Dahlman, Y. Tan and D. J. Milliron. “Dual-Mode Electrochromism in Doped Anatase TiO<sub>2</sub> Nanocrystals”, *Gordon Research Conference (GRC): Materials for Applications in Energy Technology*, **21-27 February 2015**, Poster. Ventura, CA
- C. J. Dahlman and D. J. Milliron. “Tunable Dual Mode Electrochromic Switching in Doped TiO<sub>2</sub> Nanocrystals”, *MRS Spring Meeting*, Session F10.12, **25 April 2014**, Presentation. San Francisco, CA
- S. S. Cheema, C. J. Dahlman, L. Jiang, L. C. Stowe, C. B. Wang, M. M. Patel, A. K. Bains, C. C. Liu. “Source-Separating Latrines: Implementing Sustainable Energy, Waste Management and Agricultural Solutions in Developing Communities” *EPA P3 National Sustainable Design Expo*, Poster Number B9, **16-17 April 2011**, Poster. Washington, D.C.
- C. J. Dahlman and C. W. Roebuck. “Education for System and Idea Transfer” *Engineers Without Borders - Northeast Regional Workshop*. Columbia University, **19 November 2011**, Presentation. New York, NY

## ACTIVITIES

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### ENGINEERS WITHOUT BORDERS

- Program Manager of Columbia Chapter’s Ghana Program (2010), supervised design and implementation of composting latrines in Obodan, a rural town in Eastern Region, Ghana  
New York, NY  
2007-2011

### COLUMBIA UNIVERSITY VARSITY SQUASH TEAM

- Team Captain (2010, 2011)
- Columbia Dodge Fitness Center Associate in Physical Education, *Squash Instructor*  
New York, NY  
2011-2012