Lyle M. Gordon

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Education

2014 **PhD in Materials Science and Engineering**
Northwestern University. Evanston, IL.
THESIS : Buried Organic–Inorganic Interfaces in Biological Minerals
ADVISOR : Dr. Derk Joester

2008 **BASc with Honours in Materials Science and Engineering**
University of Toronto, Toronto, ON.
THESIS : Hybrid Nanocrystalline Mesoscale Periodic Cellular Materials
ADVISOR : Dr. Glenn Hibbard

Professional Experience

2017- **Senior Scientist**, Nano Precision Medical, Emeryville, CA.
Solving materials science challenges to develop a titanium oxide nanotube membrane for a sustained release drug delivery application.

2016-2017 **Materials Scientist**, Nano Precision Medical, Emeryville, CA.
Developing tools and techniques to characterize strcture and chemistry of nanoporous titanium oxide membranes.

2012-2014 **Technology Consultant**, PreScouter, Chicago, IL.
Technology scouter connecting corporate innovators to new technologies.

Research Experience

2014-2016 **Wiley Distinguished Postdoctoral Fellowship**, Environmental Molecular Sciences Laboratory
Pacific Northwest National Laboratory, Richland, WA.
ADVISOR : Dr. A. Scott Lea
In situ electron microscopy and FTIR of ice nucleation on nanoporous surfaces and model atmospheric aerosols.

2008-2014 **Biomineral Engineering Group**, Department of Materials Science and Engineering
Northwestern University, Evanston, IL.
ADVISOR : Prof. Derk Joester
Characterization of nanoscale buried organic–inorganic interfaces in biological minerals with atom-probe tomography.

2007-2008 **Hybrid Materials Group**, Department of Materials Science and Engineering
University of Toronto, Toronto, ON.
ADVISOR : Prof. Glenn D. Hibbard
Developed and characterized a sub-millimetre scale periodic cellular material fabricated using rapid prototyping and electrodeposition of high-strength nanocrystalline nickel.

2005-2007 **Orthopaedic Biomechanics Lab**, Sunnybrook Health Sciences Centre, Toronto, ON.
ADVISOR : Prof. Cari M. Whyne.
Characterized a elastin-hyaluronan composite hydrogel for tissue engineering of the nucleus pulposus. Developed an atlas-based method to automate segmentation of vertebrae on CT scans. Developed and validated a finite element model of pelvic lateral compression fracture stability.

2004-2008 **Concrete Canoe Team**, Civil Engineering, University of Toronto, Toronto, ON.
ADVISOR : Prof. Kim D. Pressnail
Coordinated the development, testing and implementation of a carbon fiber reinforced polymer modified lightweight aggregate concrete composite for use in the construction of a racing canoe.

Teaching

2012 **Biominerals: Hierarchical Architecture and Function**, Northwestern University.
Lecture on the structure and function of the chiton tooth.

2011 **Introduction to Materials Science**, Northwestern University.
Laboratory assistant.

2009 **Introduction to Materials Science**, Northwestern University.
Teaching and laboratory assistant.

2009 **Introduction to Materials Science**, Northwestern University.
Teaching and laboratory assistant.

Grants, Honours & Fellowships

2014 **W.R. Wiley Distinguished Postdoctoral Fellowship**, Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory.

2012-2013 **Terminal Year Fellowship**. McCormick School of Engineering, Northwestern University.

2010-2012 **Postgraduate Scholarship, Doctorate**. National Science and Engineering Research Council of Canada.

2009-2010 **Postgraduate Scholarship Extension, Masters**. National Science and Engineering Research Council of Canada.

2008-2009 **Appointed University Scholar**. The Graduate School, Northwestern University.

2008 **Walter P. Murphy Fellowship**. Department of Materials Science and Engineering, Northwestern University.

2008-2009 **Postgraduate Scholarship, Masters**. National Science and Engineering Research Council of Canada.

2008 **Alexander Graham Bell Canada Graduate Scholarship, Masters**. National Science and Engineering Research Council of Canada, *declined*.

2008 **Ontario Graduate Scholarship, Masters**. Ontario Graduate Scholarship Program, *declined*.

2008 **Stanford Graduate Fellowship**. Stanford University, *declined*.

2004-2008 **Dean's Honour List**. Faculty of Applied Science and Engineering, University of Toronto. *(4 years)*

2007-2008 **Stelco Scholarship**. Department of Materials Science and Engineering, University of Toronto.

2006-2007 **Undergraduate Student Research Award**. National Science and Engineering Research Council of Canada. *(2 years)*

2005-2007 **Scholarship**. Department of Materials Science and Engineering, University of Toronto. *(2 years)*

2005 **Research Summer Studentship Award**. Sunnybrook Health Science Centre.

2004 **Entrance Scholarship**. Department of Materials Science and Engineering, University of Toronto.

Publications & Presentations

Journal articles

2018 Devaraj, A., Perea, D.E., Liu, J., **Gordon, L.M.**, Prosa, T.J., Parikh, P., Diercks, D.R., Meher, S., Kolli, R.P., Meng, Y.S., Thevuthasan, S., "Three-dimensional nanoscale characterisation of materials by atom probe tomography." *International Materials Reviews* 63, 2.

2016 Nune, S. K., Lao, D., Heldebrant, D. J., Liu, J., Olszta, M. J., Kukkadapu, R., **Gordon, L.M.**, Nandasiri, M. I., Gotthold, D. W., Schaef, H. T. "Anomalous Water Expulsion from Carbon Rods at High Humidity." *Nature Nanotechnology* 11, 791.

2015 **Gordon, L.M.**, Cohen, M.J., MacRenaris, K., Pasteris, J.D., Seda, T., Joester, D. "Amorphous Intergranular Phases Control the Properties of Tooth Enamel." *Science* 347, 6223 (2015).

2015 **Gordon, L.M.**, Joester, D. "Mapping residual organics and carbonate at grain boundaries and in the amorphous interphase in mouse incisor enamel." *Frontiers in Physiology* 6, 57. [DOI]

2014 Schreiber, D. K., Chiaramonti, A. N., **Gordon, L.M.**, Kruska, K. "Applicability of post-ionization theory to laser-assisted field evaporation" *Applied Physics Letters* 105, 244106 (2014). [DOI]

2014 **Gordon, L.M.**, Roman, J., Everly, R.M., Cohen, M.J., Wilker, J.J., Joester, D. "Selective Formation of Metastable Ferrihydrite in the Chiton Tooth." *Angewandte Chemie International Edition* 53, 11506 – 11509 (2014). [DOI]

2013 Marquis, E.A., Bachhav, M., Chen, Y., Dong, Y., **Gordon, L.M.**, Joester, D. McFacland, A. "On the current role of atom probe tomography in materials characterization and materials science." *Current Opinion in Solid State & Materials Science* 17, 217 – 223 (2013). [DOI]

2012 **Gordon, L.M.**, Tran, L., Joester, D. "Atom Probe Tomography of Apatites and Bone-Type Mineralized Tissues." *ACS Nano* 6, 10667-10675 (2012). [DOI]

2011 **Gordon, L.M.**, Joester, D. "Nano-Scale Chemical Tomography of Buried Organic–Inorganic Interfaces in the Chiton Tooth." *Nature* 469, 194-197 (2011). [DOI] Featured in *Nature Methods* 8, 199 (2011). [DOI]

2011 Moss, I., **Gordon, L.M.**, Woodhouse, K.A., Whyne, C.M., Yee, A.J.M. "A Novel Thiol-Modified-Hyaluronan and Elastin-Like Polypetide Composite Material for Tissue Engineering of the Nucleus Pulposus of the Intervertebral Disc." *Spine* 36, 1022-1029 (2011). [DOI]

2009 **Gordon, L.M.**, Bouwhuis, B.A., Suralvo, M., McCrea, J.L., Palumbo, G., Hibbard, G.D. "Micro-Truss Nanocrystalline Ni Hybrids." *Acta Materialia* 57, 932-939 (2009). [DOI]

2009 Leung, A., **Gordon, L.M.**, Skrinskas, T., Szwedowski, T., Whyne, C.M. "Effects of bone density alterations on strain patterns in the pelvis: application of a finite element model." *Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine* 223, 965-979 (2009). [DOI]

2007 Hardisty, M., **Gordon, L.M.**, Agarwal, P., Skrinskas, T., Whyne, C.M. "Quantitative characterization of metastatic disease in the spine. Part I. Semiautomated segmentation using atlas-based deformable registration and the level set method." *Medical Physics* 34, 3127 (2007). [DOI]

2007 Whyne, C.M., Hardisty, M., Wu, F., Skrinskas, T., **Gordon, L.M.**, Clemons, M., Basran, P.S. "Quantitative characterization of metastatic disease in the spine. Part II. Histogram-based analyses". *Medical Physics* 34, 3279 (2007). [DOI]

Seminars and Colloquia

2014 **Gordon, L.M.** "Buried Interfaces in Biological Minerals." NASA Jet Propulsion Laboratory Planetary Science Seminar. *Pasadena, CA.*

2014 **Gordon, L.M.** "Buried Organic–Inorganic Interfaces in Biological Minerals." The Rowland Institute at Harvard. *Cambridge, MA.*

2014 **Gordon, L.M.** "Atom Probe Tomography of Buried Organic–Inorganic Interfaces in Biological Minerals." CAMECA Instruments, Inc. *Madison, WI.*

2014 **Gordon, L.M.** "Nanoscale Structure and Chemistry of Teeth." Environmental Molecular Sciences Laboratory at Pacific Northwest National Laboratory. *Richland, WA.*

2013 **Gordon, L.M.** "Applications of Atom Probe Tomography in Biomineralization and Mineralogy." Brown University Geological Sciences Colloquium. *Providence, RI.*

2013 **Gordon, L.M.** "Rock munching mollusks: understanding biomineralization of ultrahard iron-oxide teeth." Harvard University Applied Physics Colloquium. *Cambridge, MA.*

2013 **Gordon, L.M.**, "Nanoscale Chemical Tomography of Buried Organic–Inorganic Interfaces" McMaster University, Materials Science and Engineering Department Seminar. *Hamilton, ON.*

2012 **Gordon, L.M.** "Defining Interfaces and Interphases." Tomographers Anonymous, Northwestern University. *Evanston, IL.*

Talks

2013 **Gordon, L.M.**, Cohen, M.J., Joester, D. "Grain Boundary Chemistry Controls the Properties of Tooth Enamel." XXII International Materials Research Congress. *Cancun, Mexico.*

2013 **Gordon, L.M.**, Joester, D. "Polymorph Selectivity in Chiton Tooth Biomineralization." XXII International Materials Research Congress. *Cancun, Mexico.*

2013 Brooker, L. **Gordon, L.M.**, Joester, D. "Characterisation of the microstructure of the aragonite lens of shell eyes in the chiton." XXII International Materials Research Congress. *Cancun, Mexico.*

2013 **Gordon, L.M.**, Cohen, M.J., Joester, D. "Correlative Microscopy and Spectroscopy of Buried Interfaces in Tooth Enamel." Microscopy & Microanalysis Meeting. *Indianapolis, IN.*

2013 **Gordon, L.M.**, Cohen, M.J., Joester, D. "Towards Atom Probe Tomography of Hybrid Organic–Inorganic Nanoparticles." Microscopy & Microanalysis Meeting. *Indianapolis, IN.*

2013 **Gordon, L.M.**, Cohen, M.J., Joester, D. "New applications: grain boundary and triple junction chemistry in nanocrystalline tooth enamel." Cameca Atom Probe Tomography User Meeting. *Madison, WI.*

2013 **Gordon, L.M.**, Cohen, M.J., Joester, D. "Correlative Microscopy and Spectroscopy of Tooth Enamel." Cameca Atom Probe Tomography User Meeting. *Madison, WI.*

2013 Cohen, M.J., **Gordon, L.M.**, Suram, S.K., Kaluskar, K., Rajan, K., Valley, J.W., Joester, D. "Atom Probe Tomography Reconstruction of Single Crystalline Metal Oxides." Cameca Atom Probe Tomography User Meeting. *Madison, WI.*

2013 **Gordon, L.M.**, Joester, D. "Understanding the biological stabilization of ferrihydrite and its transformation to magnetite." American Physical Society Meeting. *Baltimore, MD.*

2012 **Gordon, L.M.**, Joester, D. "Buried Interfaces in Mouse Incisor Enamel." Spring Meeting of the Materials Research Society. *San Francisco, CA.*

2011 **Gordon, L.M.**, Joester, D. "Atom Probe Tomography of Buried Organic–Inorganic Interfaces in Biological Minerals." Society of Engineering Science Meeting. *Evanston, IL.*

2011 **Gordon, L.M.**, Joester, D. "Buried Organic–Inorganic Interfaces in Mineralized Biological Tissues." 11th International Symposium on Biomineralization. *Noosa, Queensland, Australia.*

2011 **Gordon, L.M.**, Joester, D. "Buried Organic–Inorganic Interfaces in Biological Minerals." Cameca Atom Probe Tomography User Meeting. *Madison, WI.*

2009 **Gordon, L.M.**, Joester, D. "Atom Probe Tomgraphy of Buried Organic in the Chiton Tooth." Fall Meeting of the Materials Research Society. *Boston, MA.*

2006 **Gordon, L.M.**, Hardisty, M., Skrinskas, T., Wu, F., Whyne, C.M. "Automated Atlas-based 3D segmentation of the Metastatic Spine." 40th Annual Canadian Orthopaedic Research Society Meeting. *Toronto, ON.*

Published Proceedings

2013 **Gordon, L.M.**, Cohen, M.J., Joester, D. "Towards Atom Probe Tomography of Hybrid Organic–Inorganic Nanoparticles." *Microscopy & Microanalysis*. 19, Supplement S2, 952-953 (2013)

2013 **Gordon, L.M.**, Cohen, M.J., Joester, D. "Correlative Microscopy and Spectroscopy of Buried Interfaces in Tooth Enamel." *Microscopy & Microanalysis*. 19, Supplement S2, 1634-1635 (2013)

2013 Larson, D.J., Valley, J.W., Ushikubo, T., Miller, M.K., Takamizawa, H., Shimizu, Y., **Gordon, L.M.**, Joester, D. Giddings, D., Reinhard, D.A., Prosa, T.J., Olson, D.P., Lawrence, D.F., Clifton, P.H., Ulfig, R.M., Martin, I., Kelly, T.F. "New Applications in Atom Probe Tomography." *Microscopy & Microanalysis*. 19, Supplement S2, 1022-1023 (2013)

2013 Cohen, M.J., **Gordon, L.M.**, Suram, S., Kaluskar, K., Rajan, K., Valley, J.W., Joester, D. "Constraining Atom Probe Tomography Reconstructions of Crystalline Oxides." *Microscopy & Microanalysis*. 19, Supplement S2, 1010-1011 (2013)

2013 **Gordon, L.M.**, Joester, D. "Understanding the biological stabilization of ferrihydrite and its transformation to magnetite" *Bulletin of the American Physical Society*. (2013)

2012 Suram, S.K., Kaluskar, K., **Gordon, L.M.**, Joester, D., Rajan, K. "Atom Probe Tomography of Organic/Inorganic Interfaces in Biominerals." *Microscopy & Microanalysis*. 18, Supplement S2, 1608-1609 (2012)

2012 Larson, D.J., Smentkowski, V.S., **Gordon, L.M.**, Joester, D., Inoue, K., Reinhard, D.A., Prosa, T.J., Olson, D., Lawrence, D., Clifton, P.H., Ulfig, R.M., Martin, I., Snoeyenbos, D., Kelly, T.F. "New Applications in Atom Probe Tomography." *Microscopy & Microanalysis*. 18, Supplement S2, 926-927 (2012)

2008 **Gordon, L.M.**, Hardisty, M., Skrinskas, T., Wu, F., Whyne, C.M. "Automated Atlas-based 3D segmentation of the Metastatic Spine." *Journal of Bone and Joint Surgery, British Volume* 90 Supplement 1, 128 (2008)

2008 Wu, F., Burnes, D., **Gordon, L.M.**, Hardisty, M., Skrinskas, T., Basran, P., Whyne, C.M. "Quantitative Characterization of Metastatic Disease in the Spine and Development of and Automated Tracking Tool." *Journal of Bone and Joint Surgery, British Volume* 90 Supplement 1, 129 (2008)

2008 Whyne, C.M., Skrinskas, T., Yee, A., **Gordon, L.M.**, Akens, M., Hardisty, M., Burch, S., Wilson, B., Bisland, S., "Does Photodynamic Therapy Affect the Structural Integrity of Vertebral Bone." *Journal of Bone and Joint Surgery, British Volume* 90 Supplement 1, 135 (2008)

Posters

2014 **Gordon, L.M.**, Joester, D. "Buried Organic–Inorganic Interfaces in Biological Minerals" Northwestern University John E. Hilliard Memorial Symposium. *Evanston, IL.*

2013 Larson, D., Ulfig, R., Valley, J., Ushikubo, T., Miller, M., Takamizawa, H., Shimizu, Y., **Gordon, L.M.**, Joester, D., Duquenne, C., Giddings, A., Reinhard, D., Lawrence, D., Clifton, P. "New Applications in Atom Probe Tomography" Microscopy & Microanalysis Meeting. *Indianapolis, IN.*

2013 Cohen, M.J., **Gordon, L.M.**, Suram, S.K., Kaluskar, K., Rajan, K., Valley, J.W., Joester, D. "Constraining Atom Probe Tomography Reconstructions of Crystalline Oxides." Microscopy & Microanalysis Meeting. *Indianapolis, IN.*

2013 Ulfig, R., Valley, J., Ushikubo, T., Miller, M., Takamizawa, H., Shimizu, Y., **Gordon, L.M.**, Joester, D., Duquenne, C., Giddings, A., Reinhard, D., Lawrence, D., Clifton, P., Larson, D. "New Applications of LEAP® Microscopy" 15th European Conference on Applications of Surface and Interface Analysis. *Sardinia, Italy*.

2013 **Gordon, L.M.**, Joester, D. "Buried Organic/Inorganic Interfaces in Biological Minerals" Northwestern University John E. Hilliard Memorial Symposium. *Evanston, IL.*

2012 Ehrke, H.U., Smentkowski, V.S., **Gordon, L.M.**, Joester, D., Prosa, T.J., Clifton, P.H., Snoeyenbos, D., "Atom Probe Tomography - 3D Subnanometer chemical imaging extended to Photovoltaic and Geological Materials." European Mineralogical Conference . *Frankfurt, Germany.*

2012 Ehrke, H.U., Larson, D.J., Smentkowski, V.S., **Gordon, L.M.**, Joester, D., Prosa, T.J., Clifton, P.H., Snoeyenbos, D., "New Applications in Atom Probe Tomography." Microscopy & Microanalysis. *Phoenix, AZ.*

2012 **Gordon, L.M.**, Joester, D. "Model System for Biomimetic Magnetite Mineralization" Gordon Research Conference on Biomineralization. *New London, NH.*

2012 Larson, D.J., Smentkowski, V.S., **Gordon, L.M.**, Joester, D., Inoue, K., Reinhard, D.A., Prosa, T.J., Olson, D., Lawrence, D., Clifton, P.H., Ulfig, R.M., Martin, I., Snoeyenbos, D., Kelly, T.F. "New Applications in Atom Probe Tomography." Microscopy & Microanalysis. *Phoenix, AZ.*

2012 Suram, S.K., Kaluskar, K., **Gordon, L.M.**, Joester, D., Rajan, K. "Atom Probe Tomography of Organic–Inorganic Interfaces in Biominerals." Microscopy & Microanalysis. *Phoenix, AZ.*

2012 Larson, D.J., Smentkowski, V.S., **Gordon, L.M.**, Joester, D., Inoue, K., Reinhard, D.A., Prosa, T.J., Olson, D., Lawrence, D., Clifton, P.H., Ulfig, R.M., Martin, I., Snoeyenbos, D., Horreard, F., Kelly, T.F. "New Applications in Atom Probe Tomography." SCANDEM 2012: Annual Meeting of the Nordic Microscopy Society. *Bergen, Norway*

2012 Larson, D.J., Smentkowski, V.S., **Gordon, L.M.**, Joester, D., Inoue, K., Reinhard, D.A., Prosa, T.J., Olson, D., Lawrence, D., Clifton, P.H., Ulfig, R.M., Martin, I., Snoeyenbos, D., Kelly, T.F. "New Applications in Atom Probe Tomography." International Field Emission Symposium. *Tuscaloosa, AL.*

2010 **Gordon, L.M.**, Joester, D. "Nanoscale Chemical Tomography of Buried Organic–Inorganic Interfaces in Biominerals." Gordon Research Conference on Biomineralization. *New London, NH.*

2006 Hardisty, M., Skrinskas, T., **Gordon, L.M.**, Whyne, C.M. "A Repeatable Bone Quality Measurement Techniquiqe Using 3D Stereology." 40th Annual Canadian Orthopaedic Research Society Meeting. *Toronto, ON.*

2006 Whyne, C.M., Skrinskas, T., Yee, A., **Gordon, L.M.**, Akens, M., Hardisty, M., Burch, S., Wilson, B., Bisland, S. "Does Photodynamic Therapy Affect the Structural Integrity of Vertebral Bone?" 40th Annual Canadian Orthopaedic Research Society Meeting. *Toronto, ON.*

2006 Wu, F., Burnes, D., **Gordon, L.M.**, Hardisty, M., Skrinskas, T., Basran, P., Whyne, C.M. "Quantitative Characterization of Metastatic Disease in the Spine and Development of an Automated Tracking Tool." 40th Annual Canadian Orthopaedic Research Society Meeting. *Toronto, ON.*

2006 **Gordon, L.M.**, Hardisty, M., Skrinskas, T., Wu, F., Whyne, C.M. "Atlas-Based Segmentation in the Metastatic Spine via 3D Deformable Registration." 52nd Annual Meeting of the Orthopaedic Research Society. *Chicago, IL.*

2006 Hardisty, M., Skrinskas, T., **Gordon, L.M.**, Whyne, C.M. "A Repeatable Stereologic Method to Measure Bone Quality." 52nd Annual Meeting of the Orthopaedic Research Society. *Chicago, IL.*

2006 Whyne, C.N,, Skrinskas, T., Yee, A., **Gordon, L.M.**, Akens, M., Hardisty, M., Burch, S., Wilson, B., Bisland, S., "Structural Effects of Photodynamic Therapy on Vertebral Bone. 52nd Annual Meeting of the Orthopaedic Research Society." *Chicago, IL.*

2006 Wu, F., Burnes, D., **Gordon, L.M.**, Hardisty, M., Skrinskas, T., Basran, P., Whyne, C.M. "Quantitative Characterization of Metastatic Disease in the Spine and Development of and Automated Tracking Tool." 52nd Annual Meeting of the Orthopaedic Research Society. *Chicago, IL.*

Media Coverage

2014 "Microscopy Method Goes Deep." Mitch Jacoby, *Chemical & Engineering News*. Oct 13, 2014. [URL] Featured on *cen.acs.org* front page. [CACHE]

2014 "Featured in the CAMECA Instruments, Inc. Atom Probe Tomography Calendar." 2014.

2013 "Teeth are strong and resilient: chiton," Allison Miller, *The Biomimicry Institute*. Jan 22nd, 2014. [URL]

2013 "Zoologger: mollusc grows hardest teeth in the world," Alyssa Botelho, *New Scientist*. Volume 220, Issue 2937, 5 October 2013, Page 11. [URL] [PDF] Featured on *Newscientist.com* front page. [CACHE]

2013 "Tough Teeth Inspire New Bio-designs," Susan Reiss, *Research.gov*. June 5th, 2013. [URL]

2013 "Strange Biology Inspires the Best New Materials," Nadia Drake, *Wired*. Mar 27th, 2013. [URL] Featured on *Wired.com* front page. [CACHE]

2011 "3-D Nanoscale Chemical Maps Of Teeth." Mitch Jacoby, *Chemical & Engineering News*. Jan 17th, 2011. [URL]

2011 "Rock-Munching Mollusks A Model For Artificial Bones," Joe Palca, *National Public Radio*. January 13th, 2011. [URL] [MP3] [TRANSCRIPT]

2011 "Teething trouble," Kerri Smith et al., *Nature podcast*. Jan 13th, 2011. [URL] [MP3]

2011 "Imaging organic–inorganic interfaces in the tooth," *Nature Methods* 8, 199 (2011). [DOI]

2011 "Cracking a Tooth." *US News*. Jan 13th, 2011. [URL]

Awards

2013 **Microscopy & Microanalysis Presidential Scholar Award**, Microscopy Society of America and the Microanalysis Society.

2011 **Second Place: Presentation,** 11th International Symposium on Biomineralization. Noosa, Queensland, Australia.

2009 **Finalist**. Materials Research Society Science as Art Competition.

2009 **Image of Distinction**. Nikon Small World — Photomicrography Competition. [URL] [IMAGE]

2008 **First Place: Technical Report.** Canadian National Concrete Canoe Competition, Halifax, NS.

2007 **First Place: Technical Presentation.** Canadian National Concrete Canoe Competition, Kingston, ON.

Professional Service & Extracurriculars

2013 Symposium Assistant, XXII International Materials Research Congress (IMRC). Cancun, Mexico.

2013 Session Chair, Cameca Atom Probe Tomography User Meeting. Madison, WI.

2012 Symposium Assistant, Materials Research Society Spring Meeting. San Francisco, CA.

2010 Science Fair Judge. Chicago Public Schools, Area 9.

2010 Science Fair Judge. Chicago Public Schools, Area 4.

2009 Student-Faculty Representative, Materials Science Student Association, Northwestern University.

2007-2008 Project manager, University of Toronto Concrete Canoe Team.

2005-2007 Head of concrete mix and composite design, University of Toronto Concrete Canoe Team.