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ACADEMIC APPOINTMENTS

- 2015- **Arizona State University, Assistant Professor**
Center for Molecular Design and Biomimetics, The Biodesign Institute
Department of Chemistry and Biochemistry
- 2010-2014 **Wyss Institute at Harvard University, Postdoctoral Fellow**
Advisors: Peng Yin and James J. Collins

EDUCATION

- 2005-2010 **Northwestern University**
Ph.D. in Materials Science and Engineering
Advisor: Mark C. Hersam
Thesis: Monodisperse Carbon Nanomaterials for Thin Film Electronics
- 2001-2005 **University of Toronto**
B.A.Sc. with Honours in Engineering Science, Nanoengineering Option
Advisors: Edward H. Sargent and R. J. Dwayne Miller

REFEREED JOURNAL PUBLICATIONS

*equal contribution, °invited article, †cover article

Publication list also available on Google Scholar:

<http://scholar.google.com/citations?user=8zJRDjkAAAAJ&hl=en>

Total Publications: 53, Total Citations: 4295, H-Index: 28

Selected Publications

12. **A. A. Green**, P. A. Silver, J. J. Collins & P. Yin, "Toehold Switches: De-Novo-Designed Regulators of Gene Expression," *Cell* **159**, 925-939 (2014).
- Use first-principles considerations and *in silico* sequence design to generate synthetic RNA switches with high dynamic range and orthogonality.
 - Toehold switches provide >400-fold modulation of gene expression in *E. coli* and can be used for endogenous RNA sensing and complex circuit construction.
 - Highlighted in: "Synthetic biology: Toehold gene switches make big footprints", S. Ausländer & M. Fussenegger, *Nature* **516**, 333-334 (2014)
 - Highlighted in: "De novo-designed riboregulators", N. Rusk, *Nature Methods* **11**, 1192-1193 (2014).
11. K. Pardee, **A. A. Green**, T. Ferrante, D. E. Cameron, A. DaleyKeyser, P. Yin & J. J. Collins, "Paper-based Synthetic Gene Networks," *Cell* **159**, 940-954 (2014).
- Demonstrate that cell-free systems can be embedded onto paper and remain functional even after storage at room temperature
 - The poised paper-based transcription/translation machinery can be reactivated by adding water and used for detecting full-length mRNA in under an hour with colorimetric readouts.

- Accompanying Preview article: "Synthetic Biology Looks Good on Paper", A. J. Lopatkin & L. You, *Cell* **159**, 718-720 (2014).
10. †**A. A. Green** & M. C. Hersam, "Nearly Single-Chirality Single-Walled Carbon Nanotubes Produced via Orthogonal Iterative Density Gradient Ultracentrifugation," *Adv. Mater.* **23**, 2185-2190 (2011).
 - Fabricated high performance thin-film transistors with field-effect mobilities up to 17 cm²/V-s and on/off ratios approaching 10⁵ using carbon nanotubes sharing identical atomic structures
 - Times cited: 79
 9. J.-W. T. Seo*, **A. A. Green***, A. L. Antaris & M. C. Hersam, "High-Concentration Aqueous Dispersions of Graphene Using Nonionic, Biocompatible Block Copolymers," *J. Phys. Chem. Lett.* **2**, 1004-1008 (2011).
 - Discovered that high concentration dispersions of graphene can be produced using several different block copolymers. These dispersions enable application of graphene in biological contexts.
 - Times cited: 61
 8. **A. A. Green** & M. C. Hersam, "Properties and Application of Double-Walled Carbon Nanotubes Sorted by Outer-Wall Electronic Type," *ACS Nano* **5**, 1459-1467 (2011).
 - Produced the first high purity samples of electronically monodisperse double-walled carbon nanotubes. Characterized thin-film transistors fabricated from these unique materials.
 - Times cited: 34
 7. °,†**A. A. Green** & M. C. Hersam, "Emerging Methods for Producing Monodisperse Graphene Dispersions," *J. Phys. Chem. Lett.* **1**, 544-549 (2010).
 - Perspective on methods of dispersing graphene with controlled lateral dimensions and thickness, and the importance of monodisperse graphene.
 - Times cited: 104
 6. **A. A. Green** & M. C. Hersam, "Solution Phase Production of Graphene with Controlled Thickness via Density Differentiation," *Nano Lett.* **9**, 4031-4036 (2009).
 - First paper to demonstrate solution-phase separation of graphene flakes by atomic layer thickness, an important step toward applications of graphene with tailored optical and electronic properties.
 - Times cited: 339
 5. †**A. A. Green** & M. C. Hersam, "Processing and properties of highly enriched double-wall carbon nanotubes," *Nature Nanotech.* **4**, 64-70 (2009).
 - First paper to demonstrate the isolation of double-wall carbon nanotubes from a polydisperse multi-wall carbon nanotube sample, a key development for studies of nanotube interwall interactions and applications of double-wall carbon nanotubes.
 - Times cited: 125
 4. †**A. A. Green**, M. C. Duch & M. C. Hersam, "Isolation of single-walled carbon nanotube enantiomers by density differentiation," *Nano Res.* **2**, 69-77 (2009).
 - First report to use density differentiation to extract left- and right-handed carbon nanotubes from a racemic initial population.
 - Times cited: 95
 3. **A. A. Green** & M. C. Hersam, "Colored semitransparent conductive coatings consisting of monodisperse metallic single-walled carbon nanotubes," *Nano Lett.* **8**, 1417-1422 (2008).
 - Produced colorful "stained glass" transparent conductors with 5-fold higher conductivity using metallic carbon nanotubes sorted with angstrom-level resolution in diameter.

- Work featured as Research Highlight in “Tube Conductors”, *Nature* **452**, 668 (2008)
 - Times cited: 255
2. °**A.A. Green** & M. C. Hersam, "Ultracentrifugation of single-walled nanotubes," *Mater. Today* **10**, 59-60 (2007).
 - Times cited: 67
 1. M. S. Arnold, **A. A. Green**, J. F. Hulvat, S. I. Stupp & M. C. Hersam, "Sorting carbon nanotubes by electronic structure using density differentiation," *Nature Nanotech.* **1**, 60-65 (2006).
 - Accompanying News & Views article: “Materials processing: Sorting out carbon nanotube electronics”, A. G. Rinzler, *Nature Nanotech.* **1**, 17-18 (2006).
 - Times cited: 1447

Other Publications

41. J.-W. T. Seo, N. L. Yoder, T. A. Shastry, J. J. Humes, J. E. Johns, **A. A. Green** & M. C. Hersam, "Diameter refinement of semiconducting arc discharge single-walled carbon nanotubes via density gradient ultracentrifugation," *J. Phys. Chem. Lett.* **4**, 2805-2810 (2013).
40. M. E. Regler, H. J. Krenner, **A. A. Green**, M. C. Hersam, A. Wixforth & A. Hartschuh, "Controlling exciton decay dynamics in semiconducting single-walled carbon nanotubes by surface acoustic waves," *Chem. Phys.* **413**, 39-44 (2013).
39. J. Huang, A. Ng, Y. M. Piao, C.-F. Chen, **A. A. Green**, C.-F. Sun, M. C. Hersam, C. Lee & Y. H. Wang, "Covalently functionalized double-walled carbon nanotubes combine high sensitivity and selectivity in the electrical detection of small molecules," *J. Am. Chem. Soc.* **135**, 2306-2312 (2013).
38. A. L. Antaris, J.-W. T. Seo, R. E. Brock, J. E. Herriman, M. J. Born, **A. A. Green** & M. C. Hersam, "Probing and Tailoring pH-Dependent Interactions between Block Copolymers and Single-Walled Carbon Nanotubes for Density Gradient Sorting," *J. Phys. Chem. C* **116**, 20103-20108 (2012).
37. M. Engel, M. Steiner, R. S. Sundaram, R. Krupke, **A. A. Green**, M. C. Hersam & P. Avouris, "Spatially Resolved Electrostatic Potential and Photocurrent Generation in Carbon Nanotube Array Devices," *ACS Nano* **6**, 7303-7310 (2012).
36. M. Steiner, M. Engel, Y.-M. Lin, Y. Wu, K. Jenkins, D. B. Farmer, J. J. Humes, N. L. Yoder, J.-W. T. Seo, **A. A. Green**, M. C. Hersam, R. Krupke & P. Avouris, "High-frequency performance of scaled carbon nanotube array field-effect transistors," *Appl. Phys. Lett.* **101**, 053123 (2012).
35. M. W. Graham, T. R. Calhoun, **A. A. Green**, M. C. Hersam & G. R. Fleming, "Two-Dimensional Electronic Spectroscopy Reveals the Dynamics of Phonon-Mediated Excitation Pathways in Semiconducting Single-Walled Carbon Nanotubes," *Nano Lett.* **12**, 813-819 (2012).
34. D. M. Harrah, J. R. Schneck, **A. A. Green**, M. C. Hersam, L. D. Ziegler & A. K. Swan, "Intensity-Dependent Exciton Dynamics of (6,5) Single-Walled Carbon Nanotubes: Momentum Selection Rules, Diffusion, and Nonlinear Interactions," *ACS Nano* **5**, 9898-9906 (2011).
33. M. Kalbac, **A. A. Green**, M. C. Hersam & L. Kavan, "Probing charge transfer between shells of double-walled carbon nanotubes sorted by outer-wall electronic type," *Chem. Eur. J.* **17**, 9806-9815 (2011).

32. Y. M. Piao, C.-F. Chen, **A. A. Green**, H. Kwon, M. C. Hersam, C. S. Lee, G. C. Schatz & Y. H. Wang, "Optical and Electrical Properties of Inner Tubes in Outer Wall-Selectively Functionalized Double-Wall Carbon Nanotubes," *J. Phys. Chem. Lett.* **2**, 1577-1582 (2011).
31. M. W. Graham, J. Chmeliov, Y. Z. Ma, H. Shinohara, **A. A. Green**, M. C. Hersam, L. Valkunas & G. R. Fleming, "Exciton Dynamics in Semiconducting Carbon Nanotubes," *J. Phys. Chem. B* **115**, 5201-5211 (2011).
30. J. R. Schneck, A. G. Walsh, **A. A. Green**, M. C. Hersam, L. D. Ziegler & A. K. Swan, "Electron Correlation Effects on the Femtosecond Dephasing Dynamics of E_{22} Excitons in (6,5) Carbon Nanotubes," *J. Phys. Chem. A* **115**, 3917-3923 (2011).
29. M. Ganzhorn, A. Vijayaraghavan, **A. A. Green**, S. Dehm, A. Voigt, M. Rapp, M. C. Hersam & R. Krupke, "A Scalable, CMOS-Compatible Assembly of Ambipolar Semiconducting Single-Walled Carbon Nanotube Devices," *Adv. Mater.* **23**, 1734-1738 (2011).
28. R. W. Newson, **A. A. Green**, M. C. Hersam & H. M. van Driel, "Coherent injection and control of ballistic charge currents in single-walled carbon nanotubes and graphite," *Phys. Rev. B* **83** (2011).
27. M. Ganzhorn, A. Vijayaraghavan, S. Dehm, F. Hennrich, **A. A. Green**, M. Fichtner, A. Voigt, M. Rapp, H. von Lohneysen, M. C. Hersam, M. M. Kappes & R. Krupke, "Hydrogen Sensing with Diameter- and Chirality-Sorted Carbon Nanotubes," *ACS Nano* **5**, 1670-1676 (2011).
26. M. W. Graham, Y. Z. Ma, **A. A. Green**, M. C. Hersam & G. R. Fleming, "Pure optical dephasing dynamics in semiconducting single-walled carbon nanotubes," *J. Chem. Phys.* **134** (2011).
25. S. You, M. Mases, I. Dobryden, **A. A. Green**, M. C. Hersam & A. V. Soldatov, "Probing structural stability of double-walled carbon nanotubes at high non-hydrostatic pressure by Raman spectroscopy," *High Pressure Res.* **31**, 186-190 (2011).
24. M. Kinoshita, M. Steiner, M. Engel, J. P. Small, **A. A. Green**, M. C. Hersam, R. Krupke, E. E. Mendez & P. Avouris, "The polarized carbon nanotube thin film LED," *Opt. Express* **18**, 25738-25745 (2010).
23. C. Georgi, **A. A. Green**, M. C. Hersam & A. Hartschuh, "Probing Exciton Localization in Single-Walled Carbon Nanotubes Using High-Resolution Near-Field Microscopy," *ACS Nano* **4**, 5914-5920 (2010).
22. M. Bohmler, N. Hartmann, C. Georgi, F. Hennrich, **A. A. Green**, M. C. Hersam & A. Hartschuh, "Enhancing and redirecting carbon nanotube photoluminescence by an optical antenna," *Opt. Express* **18**, 16443-16451 (2010).
21. M. J. Ha, Y. Xia, **A. A. Green**, W. Zhang, M. J. Renn, C. H. Kim, M. C. Hersam & C. D. Frisbie, "Printed, Sub-3V Digital Circuits on Plastic from Aqueous Carbon Nanotube Inks," *ACS Nano* **4**, 4388-4395 (2010).
20. A. L. Antaris, J.-W. T. Seo, **A. A. Green** & M. C. Hersam, "Sorting Single-Walled Carbon Nanotubes by Electronic Type Using Nonionic, Biocompatible Block Copolymers," *ACS Nano* **4**, 4725-4732 (2010).
19. G. M. Mutlu, G. R. S. Budinger, **A. A. Green**, D. Urich, S. Soberanes, S. E. Chiarella, G. F. Alheid, D. McCrimmon, I. Szleifer & Mark C. Hersam, "Biocompatible Nanoscale Dispersion of Single Walled Carbon Nanotubes Minimizes in vivo Pulmonary Toxicity," *Nano Lett.* **10**, 1664-1670 (2010).

18. S. Essig, C. W. Marquardt, A. Vijayaraghavan, M. Ganzhorn, S. Dehm, F. Hennrich, F. Ou, **A. A. Green**, C. Sciascia, F. Bonaccorso, K.-P. Bohnen, H. v. Löhneysen, M. M. Kappes, P. Ajayan, M. C. Hersam, Mark, A. C. Ferrari, & R. Krupke, "Phonon assisted electroluminescence from metallic carbon nanotubes and graphene," *Nano Lett.* **10**, 1589-1594 (2010).
17. M. Kalbac, **A. A. Green**, M. C. Hersam & L. Kavan, "Tuning of Sorted Double-Walled Carbon Nanotubes by Electrochemical Charging," *ACS Nano* **4**, 459-469 (2010).
16. H. Harutyunyan, T. Gokus, **A. A. Green**, M. C. Hersam, M. Allegrini & A. Hartschuh, "Photoluminescence from disorder induced states in individual single-walled carbon nanotubes," *Phys. Status Solidi B* **246**, 2679-2682 (2009).
15. A. V. Naumov, O. A. Kuznetsov, A. R. Harutyunyan, **A. A. Green**, M. C. Hersam, D. E. Resasco, P. N. Nikolaev & R. B. Weisman, "Quantifying the Semiconducting Fraction in Single-Walled Carbon Nanotube Samples through Comparative Atomic Force and Photoluminescence Microscopies," *Nano Lett.* **9**, 3203-3208 (2009).
14. L. Nougaret, H. Happy, G. Dambrine, V. Derycke, J. P. Bourgoin, **A. A. Green** & M. C. Hersam, "80 GHz field-effect transistors produced using high purity semiconducting single-walled carbon nanotubes," *Appl. Phys. Lett.* **94** (2009).
13. H. Harutyunyan, T. Gokus, **A. A. Green**, M. C. Hersam, M. Allegrini & A. Hartschuh, "Defect-Induced Photoluminescence from Dark Excitonic States in Individual Single-Walled Carbon Nanotubes," *Nano Lett.* **9**, 2010-2014 (2009).
12. M. Engel, J. P. Small, M. Steiner, M. Freitag, **A. A. Green**, M. C. Hersam & P. Avouris, "Thin Film Nanotube Transistors Based on Self-Assembled, Aligned, Semiconducting Carbon Nanotube Arrays," *ACS Nano* **2**, 2445-2452 (2008).
11. Y. Z. Ma, M. W. Graham, G. R. Fleming, **A. A. Green** & M. C. Hersam, "Ultrafast Exciton Dephasing in Semiconducting Single-Walled Carbon Nanotubes," *Phys. Rev. Lett.* **101**, 217402 (2008).
10. O. Frank, L. Kavan, **A. A. Green**, M. C. Hersam & L. Dunsch, "In-situ Vis/NIR spectroelectrochemistry of single-walled carbon nanotubes enriched with (6,5) tubes," *Phys. Status Solidi B* **245**, 2239-2242 (2008).
9. H. H. Qian, C. Georgi, N. Anderson, **A. A. Green**, M. C. Hersam, L. Novotny & A. Hartschuh, "Exciton transfer and propagation in carbon nanotubes studied by near-field optical microscopy," *Phys. Status Solidi B* **245**, 2243-2246 (2008).
8. H. Qian, P. T. Araujo, C. Georgi, T. Gokus, N. Hartmann, **A. A. Green**, A. Jorio, M. C. Hersam, L. Novotny & A. Hartschuh, "Visualizing the local optical response of semiconducting carbon nanotubes to DNA-wrapping," *Nano Lett.* **8**, 2706-2711 (2008).
7. L. Kavan, O. Frank, **A. A. Green**, M. C. Hersam, J. Koltai, V. Zolyomi, J. Kurti & L. Dunsch, "In situ Raman spectroelectrochemistry of single-walled carbon nanotubes: Investigation of materials enriched with (6,5) tubes," *J. Phys. Chem. C* **112**, 14179-14187 (2008).
6. C. Georgi, N. Hartmann, T. Gokus, **A. A. Green**, M. C. Hersam & A. Hartschuh, "Photoinduced luminescence blinking and bleaching in individual single-walled carbon nanotubes," *ChemPhysChem* **9**, 1460-1464 (2008).

5. H.H. Qian, C. Georgi, N. Anderson, **A.A. Green**, M.C. Hersam, L. Novotny & A. Hartschuh, "Exciton energy transfer in pairs of single-walled carbon nanotubes," *Nano Lett.* **8**, 1363-1367 (2008).
4. T. Gokus, A. Hartschuh, H. Harutyunyan, M. Allegrini, F. Hennrich, M. Kappes, **A.A. Green**, M.C. Hersam, P.T. Araujo & A. Jorio, "Exciton decay dynamics in individual carbon nanotubes at room temperature," *Appl. Phys. Lett.* **92**, 153116 (2008).
3. **A. A. Green**, E. Istrate & E. H. Sargent, "Efficient design and optimization of photonic crystal waveguides and couplers: The Interface Diffraction Method," *Opt. Express* **13**, 7304-7318 (2005).
2. E. Istrate, **A. A. Green** & E. H. Sargent, "Behavior of light at photonic crystal interfaces," *Phys. Rev. B* **71**, 195122 (2005).
1. B. J. Siwick, **A. A. Green**, C. T. Hebeisen & R. J. D. Miller, "Characterization of ultrashort electron pulses by electron-laser pulse cross correlation," *Opt. Lett.* **30**, 1057-1059 (2005).

PATENTS

7. **A. A. Green**, P. Yin & J. J. Collins, "Riboregulator Compositions and Methods of Use," Provisional Patent Application filed November 6, 2012.
6. M. C. Hersam, J.-W. T. Seo, **A. A. Green**, & A. L. Antaris, "High-Concentration Aqueous Dispersions of Graphene Using Nonionic, Biocompatible Copolymers," U.S. Provisional Patent Application 61/623,465 filed April 16, 2012.
5. M. C. Hersam, A. L. Antaris, J.-W. T. Seo & **A. A. Green**, "Separation of Single-Walled Carbon Nanotubes by Self-Forming Density Gradient Ultracentrifugation," U.S. Patent Application 13/507,924 filed August 7, 2012.
4. A. L. Antaris, **A. A. Green** & M. C. Hersam, "Separation of Single-Walled Carbon Nanotubes by Electronic Type Using Block Copolymers," U.S. Patent Application 13/134,167 filed May 31, 2011.
3. **A. A. Green** & M. C. Hersam, "Sorting Two-Dimensional Nanomaterials by Thickness," Granted U.S. Patent US8852444 B2, October 7, 2014, and PCT International Application PCT/US2010/045493 filed August 13, 2010.
2. **A. A. Green** & M. C. Hersam, "Methods for Sorting Nanotubes by Wall Number," U.S. Formal Patent Application 12/536,250 and PCT International Application PCT/US2009/004499 filed August 5, 2009.
1. **A. A. Green** & M. C. Hersam, "Transparent Electrical Conductors Prepared from Sorted Carbon Nanotubes and Methods of Preparing Same," Granted U.S. Patent US8323784 B2, December 4, 2012.

INVITED PRESENTATIONS

10. **A. A. Green**, "Engineering RNA for Computation in Living Cells," Oral presentation at MIT, Media Lab, Cambridge, MA, March 3, 2014.
9. **A. A. Green**, "Emerging Applications of Molecular Programming in Synthetic Biology," Oral presentation at University of Texas at Austin, Department of Chemical Engineering, Department of Electrical and Computer Engineering, Austin, TX, February 27, 2014.

8. **A. A. Green**, "Emerging Applications of Molecular Programming in Synthetic Biology," Oral presentation at Johns Hopkins, Department of Biomedical Engineering, Baltimore, MD, February 24, 2014.
7. **A. A. Green**, "Emerging Applications of Molecular Programming in Synthetic Biology," Oral presentation at MIT, Department of Chemical Engineering, Cambridge, MA, February 12, 2014.
6. **A. A. Green**, "Emerging Applications of Molecular Programming in Synthetic Biology," Oral presentation at Purdue University, Department of Agricultural and Biological Engineering, West Lafayette, IN, February 6, 2014.
5. **A. A. Green**, "Emerging Applications of Molecular Programming in Synthetic Biology," Oral presentation at University of Illinois Urbana-Champaign, Department of Chemical and Biomolecular Engineering, Department of Bioengineering, Urbana-Champaign, IL, February 3, 2014.
4. **A. A. Green**, "Emerging Applications of Molecular Programming in Synthetic Biology," Oral presentation at University of California, Los Angeles, Department of Chemical and Biomolecular Engineering, Los Angeles, CA, January 21, 2014.
3. **A. A. Green**, "Emerging Applications of Molecular Programming in Synthetic Biology," Oral presentation at University of Minnesota, Department of Biochemistry, Molecular Biology, and Biophysics, Minneapolis, MN, January 13, 2014.
2. **A. A. Green**, "Emerging Applications of Molecular Programming in Synthetic Biology," Oral presentation at Arizona State University, Department of Chemistry and Biochemistry, Tempe, Tempe, AZ, January 7, 2014.
1. **A. A. Green**, "Emerging Applications of Molecular Programming in Synthetic Biology," Oral presentation at Imperial College London, Department of Chemical Engineering, London, UK, December 5, 2013.

CONTRIBUTED PRESENTATIONS

5. **A. A. Green**, P. A. Silver, J. J. Collins & P. Yin, "Conditional gene expression with toehold switches," Oral presentation by A. A. Green at 2013 Molecular Programming Project Workshop, Oxnard, CA, December 14, 2013.
4. **A. A. Green**, P. A. Silver, J. J. Collins & P. Yin, "Self-Assembly of Complex Nucleic Acid Nanostructures From Single-Stranded RNA Tiles," Oral presentation by A. A. Green at American Institute of Chemical Engineers (AIChE), San Francisco, CA, November 8, 2013.
3. **A. A. Green**, P. A. Silver, J. J. Collins & P. Yin, "Highly Orthogonal Programmable Riboregulators for Complex Digital Logic in E. coli," Oral presentation by A. A. Green at AIChE, San Francisco, CA, November 5, 2013.
2. **A. A. Green**, P. A. Silver, J. J. Collins & P. Yin, "Programmable RNA Assemblies for Complex Logic Operations in Living Cells," Oral presentation by A. A. Green at Foundations of Nanoscience (FNANO) Conference, Snowbird, UT, April 16, 2013.
1. **A. A. Green** & M. C. Hersam, "Monodisperse Carbon Nanotubes Produced Using Iterative Orthogonal Density Gradient Ultracentrifugation," Oral presentation by A. A. Green at American Institute of Chemical Engineers (AIChE), Pittsburgh, PA, October 30, 2012.

AWARDS

2009-2010	Northwestern University Terminal Year Graduate Fellowship
2006-2009	NSERC Postgraduate Scholarship – Doctoral Level
2005-2006	NSERC Postgraduate Scholarship – Master’s Level
2005	Northwestern University Cabell Fellowship (declined)
2005	DuPont-MIT Alliance Fellowship (declined)
2005	Accepted into the following Ph.D. programs (all declined):
	<ul style="list-style-type: none">• MIT Electrical Engineering and Computer Science• MIT Materials Science and Engineering• Stanford Electrical Engineering• Harvard Applied Physics• Cornell Applied Physics
2004	Engineering Science Academic Excellence Award
2003, 2004	University of Toronto Scholarships
2003, 2004	NSERC Undergraduate Student Research Awards
2002	Paulin Memorial Scholarship
2001	University of Toronto Scholarship
2001	Walter Scott Guest Memorial Scholarship
2001	James A. Gow Scholarship