Corey Oses

Materials Science and Engineering, Johns Hopkins University

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Google Scholar	user=Za7m4CMAAAAJ · citations: 8406 (YTD 1766) · h-index: 35

Work Experience

Assistant Professor	2022–present	Johns Hopkins University
Postdoctoral Fellow	2018–2022	Duke University
Internship	Summer 2013	Cornell High Energy Synchrotron Source (BioSAXS on F2 and G Beamlines)
Internship	Summer 2012	Cornell High Energy Synchrotron Source (Capillary Optics Group)

Education

Ph.D. 2013–2018 Duke University

Department: Mechanical Engineering and Materials Science
Thesis: *Machine learning, phase stability, and disorder with the Automatic Flow Framework for Materials Discovery*
DukeSpace: hdl.handle.net/10161/18254

B.Sc. 2009–2013 Cornell University

Department: Applied and Engineering Physics
Thesis: *Plume Propagation Simulation for Pulsed Laser Deposition*

Funding

Current

6. **Title**: *From Laboratory to Launchpad: Transition Pathways for Climate Science and Energy IP*
   Duration: 07/01/2025 – 06/30/2026
   Funding Level: $115,000
   Agency: Johns Hopkins University, Nexus Convening Award
   Institutions: Johns Hopkins University Applied Physics Laboratory, Johns Hopkins University, and Johns Hopkins Carey Business School
   PIs: A. G. Bregman & C. Oses; **co-PIs**: S. D. Cohen & J. Erlebacher
5. **Title**: *Building Trusted Thermodynamic Datasets for Materials Discovery of Metal Iodides*
   Duration: 03/01/2025 – 09/30/2025
   Funding Level: $25,000
   Agency: Data Science and AI Institute, 2025 Trusted Dataset Award
   Institution: Johns Hopkins University
   PI: C. Oses
4. **Title**: *AI-Driven Discovery of High-Entropy H_2 Generators (ADD-H_2)*
   Duration: 07/11/2024 – 12/31/2025
   Funding Level: $1,164,299
   Agency: Johns Hopkins University, SURPASS
   Institutions: Johns Hopkins University and Johns Hopkins University Applied Physics Laboratory
   PIs: C. Oses & A. G. Bregman; **co-PIs**: K. A. Kane, K. K. Rao, V. Leon, A. S. Hall & L. H. Hamilton
3. **Title**: *High-Entropy Glass-Ceramics for Nuclear Waste Immobilization*
   Duration: 09/21/2023 – 09/20/2025
   Funding Level: $500,000
   Agency: Advanced Research Projects Agency-Energy (ARPA-E), Creating Revolutionary Energy And Technology Endeavors (CREATE).
   Institution: Johns Hopkins University
   PI: C. Oses
2. **Title**: *High-Entropy Capacitive Energy Storage*
   Duration: 07/01/2023 – 06/30/2024
   Funding Level: $150,000
   Agency: Johns Hopkins University, Discovery Award
   Institution: Johns Hopkins University
   PI: C. Oses; **co-PI**: S. M. Koohpayeh
1. **Title**: *Startup Package*
   Duration: 07/01/2022 – 06/30/2024
   Funding Level: $664,000
   Agency: Johns Hopkins University
   Institution: Johns Hopkins University
   PI: C. Oses

Pending

3. **Title**: *QUENCH$_2$: Quantum Computing of High Entropy Catalysts for Hydrogen Harvesting*
   Duration: 08/01/2025 – 07/31/2028
   Funding Level: $6,468,183; **Cost-Share**: $646,819
   Agency: Advanced Research Projects Agency-Energy (ARPA-E), Quantum Computing for Computational Chemistry (QC^3)
   Institutions: Johns Hopkins University, Johns Hopkins University Applied Physics Laboratory, GTI Energy, and Mattiq
   PI: C. Oses; **co-PIs**: G. Quiroz, M. Bradford & J. Swisher
2. **Title**: *Addressing the Cesium Problem for Negative Hydrogen Ion Sources*
   Duration: 06/01/2025 – 05/31/2027
   Funding Level: $500,000
   Agency: Advanced Research Projects Agency-Energy (ARPA-E), Inspiring Generations of New Innovators to Impact Technologies in Energy 2025 (IGNIITE 2025)
   Institution: Johns Hopkins University
   PI: C. Oses
1. **Title**: *The role of entropy, phase, and disorder in reversible crystalline-amorphous structural transformations*
   Duration: 07/15/2024 – 07/14/2027
   Funding Level: $695,243
   Agency: Department of Energy (DOE), Synthesis and Processing
   Institutions: Johns Hopkins University, University of Connecticut, and University of Illinois at Chicago
   PI: C. Oses; **co-PIs**: S. M. Koohpayeh, A. Dupuy & R. Shahbazian-Yassar

Past

5. **Title**: *Accelerated Materials Discovery for High-Entropy Hydrogen Fuel Cell Catalysts (HE-FCC)*
   Duration: 06/05/2024 – 08/13/2024
   Funding Level: $6,000
   Agency: Institute for Data Intensive Engineering and Science, 2024 Summer Student Fellowship
   Institution: Johns Hopkins University
   PI: C. Oses
4. **Title**: *Waste-Heat Powered Hydrogen Production on Mars*
   Duration: 09/01/2023 – 08/31/2024
   Funding Level: $25,000
   Agency: Space@Hopkins, 2023 Seed Funding Program
   Institutions: Johns Hopkins University and Johns Hopkins University Applied Physics Laboratory
   PI: C. Oses; **co-PIs**: K. A. Kane & A. G. Bregman
3. **Title**: *AFLUX@JHU: Materials Search-API for the JHU* aflow.org *Data Repositories*
   Duration: 06/05/2023 – 08/13/2023
   Funding Level: $6,000
   Agency: Institute for Data Intensive Engineering and Science, 2023 Summer Student Fellowship
   Institution: Johns Hopkins University
   PI: C. Oses
2. **Title**: *Accelerated Disordered Materials Discovery for Energy Generation in Space*
   Duration: 06/05/2023 – 08/13/2023
   Funding Level: $18,796; **Cost-Share**: $10,996
   Agency: Maryland Space Grant Consortium, 2023 Summer Student Internship Program
   Institution: Johns Hopkins University
   PI: C. Oses
1. **Title**: *High-Entropy Metal-Organic Frameworks for High-Performance Lithium-Sulfur Batteries*
   Duration: 04/01/2023 – 03/31/2024
   Funding Level: $25,000
   Agency: Institute for Data Intensive Engineering and Science, 2023 Seed Funding Initiative
   Institution: Johns Hopkins University
   PI: C. Oses; **co-PI**: V. S. Thoi

Journal Publications

2025

48. G. Han†, T. Li†, X. Xu, J. Lee, S. Sequeira, A. Ajith & C. Oses*, *The search for high-entropy fuel-cell catalysts using disorder descriptors*, Nano Futures (2025). **DOI**: 10.1088/2399-1984/ae19b0.
    † contributed equally
    * corresponding
47. C. Oses*, T. Li, X. Xu, G. Han, G. Qiu & J. R. Owens, *Beyond the four core effects: revisiting thermoelectrics with a high-entropy design*, Mater. Horiz. **12**, 5946–5956 (2025). **DOI**: 10.1039/D5MH00356C. [PDF]
    * corresponding
46. G. Qiu, T. Li, X. Xu, Y. Liu, M. Niyogi, K. Cariaga & C. Oses*, *High entropy powering green energy: hydrogen, batteries, electronics, and catalysis*, npj Comput. Mater. **11**, 145 (2025). **DOI**: 10.1038/s41524-025-01594-6. [PDF]
    * corresponding

2024

45. T. Gong, G. Qiu, M.-R. He, O. V. Safonova, W.-C. Yang, D. Raciti, C. Oses & A. S. Hall, *Atomic Ordering-Induced Ensemble Variation in Alloys Governs Electrocatalyst On/Off States*, J. Am. Chem. Soc. **147**(1), 510–518 (2024). **DOI**: 10.1021/jacs.4c11753. [PDF]
44. K. S. Vecchio, S. Curtarolo, K. Kaufmann, T. J. Harrington, C. Oses & C. Toher, *Fermi energy engineering of enhanced plasticity in high-entropy carbides*, Acta Mater. **276**, 120117 (2024). **DOI**: 10.1016/j.actamat.2024.120117. [PDF]
43. M. L. Evans, J. Bergsma, A. Merkys, C. W. Andersen, O. B. Andersson, D. Beltrán, E. Blokhin, T. M. Boland, R. Castañeda Balderas, K. Choudhary, A. Díaz Díaz, R. Domínguez García, H. Eckert, K. Eimre, M. E. Fuentes-Montero, A. M. Krajewski, J. J. Mortensen, J. M. Nápoles-Duarte, J. Pietryga, J. Qi, F. d. J. Trejo Carrillo, A. Vaitkus, J. Yu, A. C. Zettel, P. Baptista de Castro, J. Carlsson, T. F. T. Cerqueira, S. Divilov, H. Hajiyani, F. Hanke, K. Jose, C. Oses, J. Riebesell, J. Schmidt, D. Winston, C. Xie, X. Yang, S. Bonella, S. Botti, S. Curtarolo, C. Draxl, L. E. Fuentes Cobas, A. Hospital, Z.-K. Liu, M. A. L. Marques, N. Marzari, A. J. Morris, S. P. Ong, M. Orozco, K. A. Persson, K. S. Thygesen, C. Wolverton, M. Scheidgen, C. Toher, G. J. Conduit, G. Pizzi, S. Gražulis, G.-M. Rignanese & R. Armiento, *Developments and applications of the OPTIMADE API for materials discovery, design, and data exchange*, Digit. Discov. **3**, 1509–1533 (2024). **DOI**: 10.1039/D4DD00039K. [PDF]
42. S. Divilov†, H. Eckert†, D. Hicks†, C. Oses†, C. Toher†, R. Friedrich, M. Esters, M. J. Mehl, A. C. Zettel, Y. Lederer, E. Zurek, J.-P. Maria, D. W. Brenner, X. Campilongo, S. Filipović, W. G. Fahrenholtz, C. J. Ryan, C. M. DeSalle, R. J. Crealese, D. E. Wolfe, A. Calzolari & S. Curtarolo, *Disordered enthalpy-entropy descriptor for high-entropy ceramics discovery*, Nature **625**, 66–73 (2024). **DOI**: 10.1038/s41586-023-06786-y. [PDF]
    † contributed equally

41. A. B. Peters, D. Zhang, S. Chen, C. Ott, C. Oses, S. Curtarolo, I. McCue, T. Pollock & S. E. Prameela, *Materials Design for Hypersonics*, Nat. Commun. **15**, 3328 (2024). **DOI**: 10.1038/s41467-024-46753-3. [PDF]
    - This paper was selected for Editors' Highlight by Springer Nature (2024).

2023

40. D. E. Wolfe, C. M. DeSalle, C. J. Ryan, R. E. Slapikas, R. T. Sweny, R. J. Crealese, P. A. Kolonin, S. P. Stepanoff, A. Haque, S. Divilov, H. Eckert, C. Oses, M. Esters, D. W. Brenner, W. G. Fahrenholtz, J.-P. Maria, C. Toher, E. Zurek & S. Curtarolo, *Influence of Processing on the Microstructural Evolution and Multiscale Hardness in Titanium Carbonitrides (TiCN) Produced via Field Assisted Sintering Technology*, Materialia **27**, 101682 (2023). **DOI**: 10.1016/j.mtla.2023.101682. [PDF]
39. C. Oses, M. Esters, D. Hicks, S. Divilov, H. Eckert, R. Friedrich, M. J. Mehl, A. Smolyanyuk, X. Campilongo, A. van de Walle, J. Schroers, A. G. Kusne, I. Takeuchi, E. Zurek, M. Buongiorno Nardelli, M. Fornari, Y. Lederer, O. Levy, C. Toher & S. Curtarolo, *`aflow++: a C++ framework for autonomous materials design`*, Comput. Mater. Sci. **217**, 111889 (2023). **DOI**: 10.1016/j.commatsci.2022.111889. [PDF]
    - This paper was selected for Editor's Choice by Elsevier (2022).
38. M. Esters, C. Oses, S. Divilov, H. Eckert, R. Friedrich, D. Hicks, M. J. Mehl, F. Rose, A. Smolyanyuk, A. Calzolari, X. Campilongo, C. Toher & S. Curtarolo, *aflow.org: a web ecosystem of databases, software and tools*, Comput. Mater. Sci. **216**, 111808 (2023). **DOI**: 10.1016/j.commatsci.2022.111808. [PDF]
37. M. Esters†, A. Smolyanyuk†, C. Oses, D. Hicks, S. Divilov, H. Eckert, X. Campilongo, C. Toher & S. Curtarolo, *QH-POCC: taming tiling entropy in thermal expansion calculations of disordered materials*, Acta Mater. **245**, 118594 (2023). **DOI**: 10.1016/j.actamat.2022.118594. [PDF]
    † contributed equally

2022

36. A. Calzolari, C. Oses, C. Toher, M. Esters, X. Campilongo, S. P. Stepanoff, D. E. Wolfe & S. Curtarolo, *Plasmonic high-entropy carbides*, Nat. Commun. **13**, 5993 (2022). **DOI**: 10.1038/s41467-022-33497-1. [PDF]
35. X. Wang, D. M. Proserpio, C. Oses, C. Toher, S. Curtarolo & E. Zurek, *The Microscopic Diamond Anvil Cell: Stabilization of Superhard, Superconducting Carbon Allotropes at Ambient Pressure*, Angew. Chem. **61**(32), e202205129 (2022). **DOI**: 10.1002/anie.202205129. [PDF]
34. H. J. Kulik, T. Hammerschmidt, J. Schmidt, S. Botti, M. A. L. Marques, M. Boley, M. Scheffler, M. Todorović, P. Rinke, C. Oses, A. Smolyanyuk, S. Curtarolo, A. Tkatchenko, A. P. Bartók, S. Manzhos, M. Ihara, T. Carrington, J. Behler, O. Isayev, M. Veit, A. Grisafi, J. Nigam, M. Ceriotti, K. T. Schütt, J. Westermayr, M. Gastegger, R. J. Maurer, B. Kalita, K. Burke, R. Nagai, R. Akashi, O. Sugino, J. Hermann, F. Noé, S. Pilati, C. Draxl, M. Kuban, S. Rigamonti, M. Scheidgen, M. Esters, D. Hicks, C. Toher, P. V. Balachandran, I. Tamblyn, S. Whitelam, C. Bellinger & L. M. Ghiringhelli, *Roadmap on Machine Learning in Electronic Structure*, Electron. Struct. **4**(2), 023004 (2022). **DOI**: 10.1088/2516-1075/ac572f. [PDF]
33. A. G. Kusne, A. McDannald, B. DeCost, C. Oses, C. Toher, S. Curtarolo, A. Mehta & I. Takeuchi, *Physics in the Machine: Integrating Physical Knowledge in Autonomous Phase-Mapping*, Front. Phys. **10**, 815863 (2022). **DOI**: 10.3389/fphy.2022.815863. [PDF]
32. C. Toher, C. Oses, M. Esters, D. Hicks, G. N. Kotsonis, C. M. Rost, D. W. Brenner, J.-P. Maria & S. Curtarolo, *High-entropy ceramics: Propelling applications through disorder*, MRS Bull. **47**, 194–202 (2022). **DOI**: 10.1557/s43577-022-00281-x. [PDF]

2021

31. M. Esters, C. Oses, D. Hicks, M. J. Mehl, M. Jahnátek, M. D. Hossain, J.-P. Maria, D. W. Brenner, C. Toher & S. Curtarolo, *Settling the matter of the role of vibrations in the stability of high-entropy carbides*, Nat. Commun. **12**, 5747 (2021). **DOI**: 10.1038/s41467-021-25979-5. [PDF]
    - This paper was selected for Editors' Highlight by Springer Nature (2021).
30. M. D. Hossain, T. Borman, C. Oses, M. Esters, C. Toher, L. Feng, A. Kumar, W. G. Fahrenholtz, S. Curtarolo, D. W. Brenner, J. M. LeBeau & J.-P. Maria, *Entropy Landscaping of High-Entropy Carbides*, Adv. Mater. **33**(42), 2102904 (2021). **DOI**: 10.1002/adma.202102904. [PDF]
29. C. W. Andersen†, R. Armiento†, E. Blokhin†, G. J. Conduit†, S. Dwaraknath†, M. L. Evans†, Á. Fekete†, A. Gopakumar†, S. Gražulis†, A. Merkys†, F. Mohamed†, C. Oses†, G. Pizzi†, G.-M. Rignanese†, M. Scheidgen†, L. Talirz†, C. Toher†, D. Winston†, R. Aversa, K. Choudhary, P. Colinet, S. Curtarolo, D. Di Stefano, C. Draxl, S. Er, M. Esters, M. Fornari, M. Giantomassi, M. Govoni, G. Hautier, V. Hegde, M. K. Horton, P. Huck, G. Huhs, J. Hummelshøj, A. Kariryaa, B. Kozinsky, S. Kumbhar, M. Liu, N. Marzari, A. J. Morris, A. Mostofi, K. A. Persson, G. Petretto, T. Purcell, F. Ricci, F. Rose, M. Scheffler, D. Speckhard, M. Uhrin, A. Vaitkus, P. Villars, D. Waroquiers, C. Wolverton, M. Wu & X. Yang, *OPTIMADE: an API for exchanging materials data*, Sci. Data **8**, 217 (2021). **DOI**: 10.1038/s41597-021-00974-z. [PDF]
    † contributed equally
28. R. Friedrich, M. Esters, C. Oses, S. Ki, M. J. Brenner, D. Hicks, M. J. Mehl, C. Toher & S. Curtarolo, *Automated coordination corrected enthalpies with AFLOW-CCE*, Phys. Rev. Mater. **5**, 043803 (2021). **DOI**: 10.1103/PhysRevMaterials.5.043803. [PDF]
27. D. Hicks, M. J. Mehl, M. Esters, C. Oses, O. Levy, G. L. W. Hart, C. Toher & S. Curtarolo, *The AFLOW Library of Crystallographic Prototypes: Part 3*, Comput. Mater. Sci. **199**, 110450 (2021). **DOI**: 10.1016/j.commatsci.2021.110450.
26. M. J. Mehl, M. Ronquillo, D. Hicks, M. Esters, C. Oses, R. Friedrich, A. Smolyanyuk, E. Gossett, D. Finkenstadt & S. Curtarolo, *Tin-pest problem as a test of density functionals using high-throughput calculations*, Phys. Rev. Mater. **5**, 083608 (2021). **DOI**: 10.1103/PhysRevMaterials.5.083608. [PDF]

25. M. D. Hossain†, T. Borman†, A. Kumar, X. Chen, A. Khosravani, S. R. Kalidindi, E. A. Paisley, M. Esters, C. Oses, C. Toher, S. Curtarolo, J. M. LeBeau, D. W. Brenner & J.-P. Maria, *Carbon Stoichiometry and Mechanical Properties of High Entropy Carbides*, Acta Mater. **215**, 117051 (2021). **DOI**: 10.1016/j.actamat.2021.117051. [PDF]
† contributed equally

2020

24. A. G. Kusne†, H. Yu†, C. Wu, H. Zhang, J. Hattrick-Simpers, B. DeCost, S. Sarker, C. Oses, C. Toher, S. Curtarolo, A. V. Davydov, R. Agarwal, L. A. Bendersky, M. Li, A. Mehta & I. Takeuchi, *On-the-fly Closed-loop Autonomous Materials Discovery via Bayesian Active Learning*, Nat. Commun. **11**, 5966 (2020). **DOI**: 10.1038/s41467-020-19597-w. [PDF]
† contributed equally
23. K. Kaufmann, D. Maryanovsky, W. M. Mellor, C. Zhu, A. S. Rosengarten, T. J. Harrington, C. Oses, C. Toher, S. Curtarolo & K. S. Vecchio, *Discovery of novel high-entropy ceramics via machine learning*, npj Comput. Mater. **6**, 42 (2020). **DOI**: 10.1038/s41524-020-0317-6. [PDF]
22. C. Oses, C. Toher & S. Curtarolo, *High-entropy ceramics*, Nat. Rev. Mater. **5**, 295–309 (2020). **DOI**: 10.1038/s41578-019-0170-8. [PDF]
    - This paper was highlighted as a "hot paper" by Web of Science (Clarivate Analytics) (November 16, 2021).

2019

21. D. C. Ford, D. Hicks, C. Oses, C. Toher & S. Curtarolo, *Metallic glasses for biodegradable implants*, Acta Mater. **176**, 297–305 (2019). **DOI**: 10.1016/j.actamat.2019.07.008. [PDF]
20. P. Avery, X. Wang, C. Oses, E. Gossett, D. M. Proserpio, C. Toher, S. Curtarolo & E. Zurek, *Predicting Superhard Materials via a Machine Learning Informed Evolutionary Structure Search*, npj Comput. Mater. **5**, 89 (2019). **DOI**: 10.1038/s41524-019-0226-8. [PDF]
19. C. Toher, C. Oses, D. Hicks & S. Curtarolo, *Unavoidable disorder and entropy in multi-component systems*, npj Comput. Mater. **5**, 69 (2019). **DOI**: 10.1038/s41524-019-0206-z. [PDF]
18. R. Friedrich, D. Usanmaz, C. Oses, A. R. Supka, M. Fornari, M. Buongiorno Nardelli, C. Toher & S. Curtarolo, *Coordination corrected ab initio formation enthalpies*, npj Comput. Mater. **5**, 59 (2019). **DOI**: 10.1038/s41524-019-0192-1. [PDF]
17. P. Nath, D. Usanmaz, D. Hicks, C. Oses, M. Fornari, M. Buongiorno Nardelli, C. Toher & S. Curtarolo, *AFLOW-QHA3P: Robust and automated method to compute thermodynamic properties of solids*, Phys. Rev. Mater. **3**, 073801 (2019). **DOI**: 10.1103/PhysRevMaterials.3.073801. [PDF]

2018

16. C. Oses, E. Gossett, D. Hicks, F. Rose, M. J. Mehl, E. Perim, I. Takeuchi, S. Sanvito, M. Scheffler, Y. Lederer, O. Levy, C. Toher & S. Curtarolo, *AFLOW-CHULL: Cloud-oriented platform for autonomous phase stability analysis*, J. Chem. Inf. Model. **58**(12), 2477–2490 (2018). **DOI**: 10.1021/acs.jcim.8b00393. [PDF]
15. C. Oses, C. Toher & S. Curtarolo, *Data-driven design of inorganic materials with the Automatic Flow Framework for Materials Discovery*, MRS Bull. **43**(9), 670–675 (2018). **DOI**: 10.1557/mrs.2018.207. [PDF]
14. P. Sarker†, T. J. Harrington†, C. Toher, C. Oses, M. Samiee, J.-P. Maria, D. W. Brenner, K. S. Vecchio & S. Curtarolo, *High-entropy high-hardness metal carbides discovered by entropy descriptors*, Nat. Commun. **9**, 4980 (2018). **DOI**: 10.1038/s41467-018-07160-7. [PDF]
† contributed equally
13. V. Stanev, C. Oses, A. G. Kusne, E. Rodriguez, J. Paglione, S. Curtarolo & I. Takeuchi, *Machine learning modeling of superconducting critical temperature*, npj Comput. Mater. **4**, 29 (2018). **DOI**: 10.1038/s41524-018-0085-8. [PDF]
12. E. Gossett, C. Toher, C. Oses, O. Isayev, F. Legrain, F. Rose, E. Zurek, J. Carrete, N. Mingo, A. Tropsha & S. Curtarolo, *AFLOW-ML: A RESTful API for machine-learning prediction of materials properties*, Comput. Mater. Sci. **152**, 134–145 (2018). **DOI**: 10.1016/j.commatsci.2018.03.075. [PDF]
    - This paper was selected for Editor's Choice by Elsevier (2018).
11. D. Hicks, C. Oses, E. Gossett, G. Gomez, R. H. Taylor, C. Toher, M. J. Mehl, O. Levy & S. Curtarolo, *AFLOW-SYM: platform for the complete, automatic and self-consistent symmetry analysis of crystals*, Acta Cryst. A **74**, 184–203 (2018). **DOI**: 10.1107/S2053273318003066. [PDF]

2017

10. A. Hever, C. Oses, S. Curtarolo, O. Levy & A. Natan, *The structure and composition statistics of 6A binary and ternary structures*, Inorg. Chem. **57**(2), 653–667 (2017). **DOI**: 10.1021/acs.inorgchem.7b02462. [PDF]
9. F. Rose, C. Toher, E. Gossett, C. Oses, M. Buongiorno Nardelli, M. Fornari & S. Curtarolo, *AFLUX: The LUX materials search API for the AFLOW data repositories*, Comput. Mater. Sci. **137**, 362–370 (2017). **DOI**: 10.1016/j.commatsci.2017.04.036. [PDF]
    - This paper was selected for Editor's Choice by Elsevier (2017).
8. O. Isayev†, C. Oses†, C. Toher, E. Gossett, S. Curtarolo & A. Tropsha, *Universal Fragment Descriptors for Predicting Properties of Inorganic Crystals*, Nat. Commun. **8**, 15679 (2017). **DOI**: 10.1038/ncomms15679. [PDF]
† contributed equally
7. C. Toher, C. Oses, J. J. Plata, D. Hicks, F. Rose, O. Levy, M. de Jong, M. Asta, M. Fornari, M. Buongiorno Nardelli & S. Curtarolo, *Combining the AFLOW GIBBS and elastic libraries to efficiently and robustly screening thermomechanical properties of solids*, Phys. Rev. Mater. **1**, 015401 (2017). **DOI**: 10.1103/PhysRevMaterials.1.015401. [PDF]
6. C. Nyshadham, C. Oses, J. E. Hansen, I. Takeuchi, S. Curtarolo & G. L. W. Hart, *A Computational High-Throughput Search for New Ternary Superalloys*, Acta Mater. **122**, 438–447 (2017). **DOI**: 10.1016/j.actamat.2016.09.017. [PDF]

5. S. Sanvito, C. Oses, J. Xue, A. Tiwari, M. Žic, T. Archer, P. Tozman, M. Venkatesan, J. M. D. Coey & S. Curtarolo, *Accelerated Discovery of New Magnets in the Heusler Alloy Family*, Sci. Adv. **3**(4), e1602241 (2017). **DOI**: 10.1126/sciadv.1602241. [PDF]

2016

4. A. van Roekeghem, J. Carrete, C. Oses, S. Curtarolo & N. Mingo, *High-Throughput Computation of Thermal Conductivity of High-Temperature Solid Phases: The Case of Oxide and Fluoride Perovskites*, Phys. Rev. X **6**(4), 041061 (2016). **DOI**: 10.1103/PhysRevX.6.041061. [PDF]
3. K. Yang, C. Oses & S. Curtarolo, *Modeling Off-Stoichiometry Materials with a High-Throughput Ab-Initio Approach*, Chem. Mater. **28**(18), 6484–6492 (2016). **DOI**: 10.1021/acs.chemmater.6b01449. [PDF]

2015

2. C. E. Calderon, J. J. Plata, C. Toher, C. Oses, O. Levy, M. Fornari, A. Natan, M. J. Mehl, G. L. W. Hart, M. Buongiorno Nardelli & S. Curtarolo, *The AFLOW Standard for High-Throughput Materials Science Calculations*, Comput. Mater. Sci. **108A**, 233–238 (2015). **DOI**: 10.1016/j.commatsci.2015.07.019. [PDF]
   - This paper was selected for Editor's Choice by Elsevier (2015).
1. O. Isayev, D. Fourches, E. N. Muratov, C. Oses, K. M. Rasch, A. Tropsha & S. Curtarolo, *Materials Cartography: Representing and Mining Materials Space Using Structural and Electronic Fingerprints*, Chem. Mater. **27**(3), 735–743 (2015). **DOI**: 10.1021/cm503507h. [PDF]
   - This paper was one of the top 10 most highly downloaded papers for the month of January 2015 by the American Chemical Society (2015).
   - This paper was selected for Editors' Choice by the American Chemical Society (2015).

Book Publications

2019

3. C. Toher, C. Oses & S. Curtarolo, *Automated computation of materials properties*, Materials Informatics: Methods, Tools and Applications, Ch. 7. **DOI**: 10.1002/9783527802265.ch7. [PDF]

2018

2. S. Sanvito, M. Žic, J. Nelson, T. Archer, C. Oses & S. Curtarolo, *Machine learning and high-throughput approaches to magnetism*, Handbook of Materials Modeling. Volume 2 Applications: Current and Emerging Materials. **DOI**: 10.1007/978-3-319-50257-1_108-1. [PDF]
1. C. Toher, C. Oses, D. Hicks, E. Gossett, F. Rose, P. Nath, D. Usanmaz, D. C. Ford, E. Perim, C. E. Calderon, J. J. Plata, Y. Lederer, M. Jahnátek, W. Setyawan, S. Wang, J. Xue, K. M. Rasch, R. V. Chepulskii, R. H. Taylor, G. Gomez, H. Shi, A. R. Supka, R. Al Rahal Al Orabi, P. Gopal, F. T. Cerasoli, L. Liyanage, H. Wang, I. Siloi, L. A. Agapito, C. Nyshadham, G. L. W. Hart, J. Carrete, F. Legrain, N. Mingo, E. Zurek, O. Isayev, A. Tropsha, S. Sanvito, R. M. Hanson, I. Takeuchi, M. J. Mehl, A. N. Kolmogorov, K. Yang, P. D'Amico, A. Calzolari, M. Costa, R. De Gennaro, M. Buongiorno Nardelli, M. Fornari, O. Levy & S. Curtarolo, *The AFLOW Fleet for Materials Discovery*, Handbook of Materials Modeling. Volume 1 Methods: Theory and Modeling. **DOI**: 10.1007/978-3-319-42913-7_63-2. [PDF]

Talks/Presentations

AI Materials Discovery for Nuclear Waste and Spent Fuel Immobilization

53. **Invited talk** for the 2025 Annual Fission Workshop of the Advanced Research Projects Agency-Energy (ARPA-E), Arlington, VA — October 02, 2025.

Accelerating Energy Solutions with High-Entropy Materials: Leveraging Disorder, Computation, and AI

52. **Invited talk** for the The Advanced Materials Show at the MS&T25 Technical Meeting and Exhibition, Columbus, OH — September 30, 2025.

High-Entropy Alloys and Halides: Expanding the Energy-Materials Space

51. **Invited talk** for the Symposium on "Advances in Refractory High Entropy Alloys and Ceramics" at the MS&T25 Technical Meeting and Exhibition, Columbus, OH — September 30, 2025.

High-Entropy Oxides and Halides: Expanding the Energy-Materials Space

50. **Invited talk** for the Artificial Intelligence for Materials Science (AIMS) Workshop at the National Institute of Standards and Technology (NIST), Rockville, MD — June 10, 2025.
    - *Artificial Intelligence for Materials Science (AIMS) Workshop* recording: https://www.nist.gov/news-events/events/2025/07/artificial-intelligence-materials-science-aims-workshop

High-Entropy Halides: Expanding the Energy-Materials Space

49. **Invited talk** for the Symposium on "High Entropy and Complex Structure for Electrocatalysis and Other Applications" at the ACS Spring 2025 Meeting & Expo, San Diego, CA — March 25, 2024.
48. **Invited talk** for the Symposium on "Advances in Ceramic Materials and Processing" at the TMS 2025 Annual Meeting & Exhibition, Las Vegas, NV — March 24, 2025.

Metal Iodide Materials for Energy Applications

47. **Invited talk** for the Symposium on "Understanding High Entropy Materials Via Data-Science and Computational Approaches" at the MS&T24 Technical Meeting and Exhibition, Pittsburgh, PA — October 09, 2024.

Success Stories in Computationally–Driven Materials Discovery

46. **Invited seminar** for the Departmental Seminar Series at the Department of Materials Science and Engineering at the University of Connecticut, Storrs, CT — September 27, 2024.
45. **Contributed talk** for the Symposium on "Machine learning assisted materials discovery" at the 11th International Conference on Multiscale Materials Modeling (MMM11), Prague, Czech Republic — September 24, 2024.
44. **Invited seminar** for the Departmental Seminar Series at the Department of Chemical and Nano Engineering at the University of California, San Diego, San Diego, CA — May 01, 2024.
43. **Invited seminar** for the Materials Science and Engineering Fall Seminar Series at the Rensselaer Polytechnic Institute, Troy, NY — October 18, 2023.
42. **Invited seminar** for the Physics Department Colloquium at Georgetown University, Washington, DC — September 26, 2023.
41. **Invited seminar** for the OneChemistry Symposium, Johns Hopkins University — April 18, 2023.
40. **Invited seminar** for the Computational Spintronics Group, Trinity College Dublin, Ireland — February 17, 2023.
39. **Invited seminar** for the Physics Department Colloquium at Johns Hopkins University, Baltimore, Maryland — February 15, 2023.

Disorder by design: Applications and modeling of high-entropy ceramics

38. **Invited talk** for the Symposium on "Advancing Ab-Initio Force Fields with Machine-Learning for Energy Materials" at the International Conference on Computational & Experimental Engineering and Sciences (ICCES 2024), Singapore — August 04, 2024.
37. **Invited seminar** for the Departmental Seminar Series at the University of Michigan, Ann Arbor, MI — March 04, 2024.
36. **Invited seminar** for the Johns Hopkins University Applied Physics Laboratory, Baltimore, Maryland — March 09, 2023.
35. **Invited seminar** for the Hopkins Extreme Materials Institute at Johns Hopkins University, Baltimore, Maryland — November 01, 2022.
34. **Invited seminar** for the Department of Materials Science and Engineering at Texas A&M University, College Station, Texas — February 10, 2022.

Bayesian Optimization of the PhD (and beyond)

33. **Keynote** for the Fifth Annual Research Summit for the University Center of Exemplary Mentoring at Duke University, Durham, NC — February 29, 2024.

Computational Materials Science

32. **Invited seminar** for the PARADIM Summer School, Johns Hopkins University — August 02, 2023.

Formation Descriptors for High-Entropy High-Hardness Metal Carbides

31. **Invited talk** for the Machine Learning in Ceramics and Glasses Webinar at the Institute of Materials, Minerals and Mining (IOM3), London, UK — March 29, 2022.

High-entropy ceramics

30. **Invited seminar** for the Department of Materials Science and Engineering at Michigan Technological University, Houghton, Michigan — March 17, 2022.
29. **Invited seminar** for the Department of Materials Science and Engineering at the University of California, Irvine, Irvine, CA — March 04, 2022.
28. **Invited seminar** for the Department of Physics at the University of Alabama at Birmingham, Birmingham, Alabama — February 04, 2022.
27. **Invited seminar** for the Department of Mechanical Engineering at Rowan University, Glassboro, NJ — January 27, 2022.
26. **Invited seminar** for the Department of Materials Science and Engineering at Johns Hopkins University, Baltimore, MD — January 04, 2022.
25. **Invited seminar** for the Department of Mechanical Engineering at Texas A&M University, College Station, Texas — February 24, 2021.
24. **Invited seminar** for the Lecture Series in Materials Science & Engineering at the North Carolina State University, Raleigh, North Carolina — January 22, 2021.

Data for Materials Development Platforms

23. **Invited seminar** for the aiM Program Boot Camp and Orientation at Duke University, Durham, North Carolina — August 19, 2021.
    - *Data for Materials Development Platforms* recording: https://youtu.be/wLegemRIMpk

Entropy and ceramics: A valuable partnership

22. **Invited seminar** for the Department of Materials and Interfaces at the Weizmann Institute of Science, Rehovot, Israel — February 06, 2020.
21. **Invited seminar** for the Sackler Center for Computational Molecular and Materials Science at Tel Aviv University, Tel Aviv, Israel — February 05, 2020.
20. **Invited seminar** for the Department of Materials Engineering at Ben-Gurion University of the Negev, Beer Sheva, Israel — January 29, 2020.

Cloud-oriented computational phase diagrams with AFLOW-CHULL

19. **Contributed talk** for the March Meeting of the American Physical Society, Boston, Massachusetts — March 07, 2019.
18. **Poster presentation** for the Open Databases Integration for Materials Design (OPTiMaDe) Workshop of CECAM (Centre Européen de Calcul Atomique et Moléculaire), Lausanne, Switzerland — June 11, 2018.

Going Off-Stoichiometry: Challenging Traditional Materials Discovery

17. **Invited seminar** for the Center for Computational Materials Science at the Naval Research Laboratory, Washington, D.C. — January 09, 2019.

Universal Fragment Descriptors for Predicting Properties of Inorganic Crystals

16. **Contributed talk** for the 13th World Congress in Computational Mechanics (WCCM) of the International Association for Computational Mechanics (IACM), New York City, New York — July 23, 2018.
15. **Contributed talk** for the Mach Conference of the Hopkins Extreme Materials Institute (HEMI), Annapolis, Maryland — April 05, 2018.
14. **Contributed talk** for the Chemistry Department's Third Annual Graduate Research Symposium at Duke University, Durham, North Carolina — October 09, 2017.
13. **Contributed talk** for the March Meeting of the American Physical Society, New Orleans, Louisiana — March 14, 2017.

Advancements in Materials Informatics with AFLOW

12. **Invited seminar** for the Theory Department at the Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin, Germany — January 18, 2018.
11. **Invited seminar** for the Physics Department at the Humboldt University of Berlin, Berlin, Germany — January 16, 2018.

Modeling Off-Stoichiometric Materials with a High-Throughput, Ab-Initio Approach

10. **Contributed talk** for the March Meeting of the American Physical Society, Baltimore, Maryland — March 16, 2016.

Materials Cartography: Representing and Mining Materials Space using Structural and Electronic Fingerprints

9. **Invited seminar** for the Condensed Matter Physics Seminar Series at Brigham Young University, Provo, Utah — February 18, 2016.
8. **Contributed talk** for the Mechanical Engineering and Materials Science (MEMS) Department's Graduate Student Seminar Series at Duke University, Durham, North Carolina — September 25, 2015.
7. **Contributed talk** for the March Meeting of the American Physical Society, San Antonio, Texas — March 02, 2015.

Plume Propagation Simulation for Pulsed Laser Deposition

6. **Poster presentation** for the Machine Learning Summer School (MLSS) at the University of Texas at Austin, Austin, Texas — January 12, 2015.
5. **Contributed talk** for the NSF/AAAS/EHR Emerging Researchers National Conference, Washington, D.C. — February 22, 2014.
4. **Poster presentation** for the MRS/ASM/AVS/AReMS Meeting, North Carolina State University, Raleigh, North Carolina — November 15, 2013.
3. **Poster presentation** for the Mechanical Engineering and Materials Science (MEMS) Department's Annual Retreat at Duke University, Durham, North Carolina — August 22, 2013.
    - Best Presentation Award

Synchrotron Radiation Focusing Optics — Capillary Beam Stop Design

2. **Contributed talk** for the NSF/AAAS/EHR Emerging Researchers National Conference, Washington, D.C. — March 02, 2013.
    - First Place in Nanoscience and Physics Research Presentation
1. **Poster presentation** for the LSAMP Research Symposium at Cornell University, Ithaca, New York — August 07, 2012.

Teaching Experience

Instructor	Springs 2023–2025	EN.500.113: *Gateway Computing: Python*, Johns Hopkins University
Instructor	Falls 2023–2024	EN.510.666: *Introduction to Computational Materials Modeling*, Johns Hopkins University
Co-Instructor	Spring 2021	ME 555: *Applications of Artificial Intelligence in Materials*, Duke University Department of Mechanical Engineering and Materials Science
Teaching Assistant	Spring 2020	ME 555: *Computational Materials Science by Examples and Applications*, Duke University Department of Mechanical Engineering and Materials Science
Teaching Assistant	Fall 2014–Spring 2015	ME 221: *Structure and Properties of Solids*, Duke University Department of Mechanical Engineering and Materials Science

- Best Teaching Assistant Award, August 14, 2015

Service

Data-Driven Materials Modeling Workshop

Co-Organizers: B. Bukowski & T. Curk

21. **Organizer and Presenter** at Johns Hopkins University, Baltimore, Maryland — May 29–31, 2024.
    - *Data-Driven Thermodynamic Modeling for Materials Discovery* recording: https://youtu.be/kZj3zQkBAKg

Foundations to Futures: Materials Data and AI

Co-Chairs: D. Audus & F. Sen

20. **Conference Co-Chair** at the Materials Research Data Alliance (MaRDA) 2024 Annual Meeting, Baltimore, Maryland — February 20–22, 2024.

Focus Session: Computational Design, Understanding and Discovery of Novel Materials

Co-Chairs: E. Jankowski, R. Sundararaman & D. Usanmaz

19. **Session Chair** for the March Meeting of the American Physical Society, Minneapolis, Minnesota — March 3–8, 2024.

AI, Data Science — Developing the Role for Sustainable Energy in Hopkins' Expansion and Vision

Co-Chair: P. Clancy

18. **Session Co-Chair** at the ROSEI 2024 Summit, Baltimore, Maryland — January 17, 2024.

AFLOW School: Integrated infrastructure for computational materials discovery

Co-Organizers: C. Toher, D. Hicks, M. Esters, R. Friedrich, E. Gossett, A. Smolyanyuk, H. Eckert, S. Divilov, F. Rose, M. J. Brenner & S. Curtarolo

17. **Presenter** for the Machine Learning for Materials Research Bootcamp of the University of Maryland/NIST/MRS, College Park, Maryland — August 10, 2023.
16. **Organizer and Presenter** at Johns Hopkins University, Baltimore, Maryland — September 21, 2022.
    - *Introduction and AFLOW-ML: Machine Learning* recording: https://youtu.be/Xj5BGuFC9ew
15. **Presenter** for the Machine Learning for Materials Research Bootcamp of the University of Maryland/NIST/MRS, College Park, Maryland — August 11, 2022.
14. **Co-Organizer and Presenter** at the East African Institute for Fundamental Research, University of Rwanda, Kigali, Rwanda — February 21–24, 2022.
13. **Co-Organizer and Presenter** at the Technische Universität (TU) Dresden and Helmholtz-Zentrum Dresden-Rossendorf — September 6–10, 2021.
    - *Introduction to Density Functional Theory and VASP* recording: https://youtu.be/_RsQH3TY7kI
    - *AFLOW-CHULL: Thermodynamics* recording: https://youtu.be/zcY7gTZIB-Y
    - *AFLOW-POCC: Disorder* recording: https://youtu.be/lcDSYiF4AS4
12. **Co-Organizer and Presenter** at the University of Virginia, Charlottesville, Virginia — August 17, 2021.
    - *AFLOW-CHULL and AFLOW-CCE: Thermodynamics* recording: https://youtu.be/cLhOcN1sQ7M
11. **Presenter** for the Machine Learning for Materials Research Bootcamp of the University of Maryland/NIST, College Park, Maryland — July 29, 2021.
    - *AFLOW-ML: Machine Learning* recording: https://youtu.be/uFQ-lyTaxCc
10. **Co-Organizer and Presenter** at Texas A&M University, College Station, Texas — July 12–15, 2021.
    - *Introduction to Density Functional Theory and VASP* recording: https://youtu.be/KXnJGdVgosA
    - *AFLOW-CHULL and AFLOW-CCE: Thermodynamics* recording: https://youtu.be/ElaniAcrbhU
    - *AFLOW-POCC: Disorder* recording: https://youtu.be/D_cfHIlpBiA
9. **Session Chair** for the Virtual Spring Meeting of the Materials Research Society — April 17, 2021.
8. **Presenter** for the Materials 4.0 Summer School 2020 at the Dresden Center for Computational Materials Science (DCMS), Technische Universität (TU) Dresden — August 18, 2020.
    - *AFLOW-CHULL: Thermodynamics* recording: https://youtu.be/ncm356YNBVc
7. **Presenter** for the Machine Learning for Materials Research Bootcamp & Workshop on Machine Learning Microscopy Data of the University of Maryland/NIST, College Park, Maryland — July 23, 2020.
    - *AFLOW-ML: Machine Learning* recording: https://youtu.be/x2qeBtOXues
6. **Co-Organizer and Presenter** at Texas A&M University, College Station, Texas — June 16–18, 2020.
    - *Introduction to Density Functional Theory and VASP* recording: https://youtu.be/ChySAfo2w7g
    - *AFLOW-CHULL: Thermodynamics* recording: https://youtu.be/9Sa8D4inJ5w
    - *AFLOW-POCC: Disorder* recording: https://youtu.be/xr-mU-1ShQQ
5. **Presenter** for the Machine Learning for Materials Research Bootcamp & Workshop on Autonomous Materials Research of the University of Maryland/NIST, College Park, Maryland — August 05, 2019.
4. **Co-Organizer and Presenter** at the University of Pennsylvania, Philadelphia, Pennsylvania — May 03, 2019.
3. **Co-Organizer and Presenter** at the North Carolina State University, Raleigh, North Carolina — March 12, 2019.
2. **Co-Organizer and Presenter** at Carnegie Mellon University, Pittsburgh, Pennsylvania — January 21, 2019.
1. **Presenter** for the Machine Learning for Materials Research Bootcamp & Workshop on Machine Learning Quantum Materials of the University of Maryland/NIST/Moore Foundation, Institute for Bioscience & Biotechnology Research in Gaithersburg, Maryland — August 02, 2018.

Press and News Releases

Duke University Pratt School of Engineering	October 11, 2022	*Heat-Proof Chaotic Carbides Could Revolutionize Aerospace Technology* pratt.duke.edu/about/news/heat-proof-chaotic-carbides-could-revolutionize-aerospace-technology
White House Office of Science & Technology Policy	November 18, 2021	*Featured Vignette in the November 2021 Materials Genome Initiative Strategic Plan (page 9)* mgi.gov/sites/default/files/documents/MGI-2021-Strategic-Plan.pdf

University of Buffalo	September 2019	*Scientists predict new forms of superhard carbon* • This press release is featured on Phys.org, ScienceDaily, SciTechDaily, and Tribonet. buffalo.edu/ubnow/stories/2019/09/zurek-superhard-carbon.html
Duke University Pratt School of Engineering	November 2018	*Disordered Materials Could Be Hardest, Most Heat-Tolerant Ever* • This press release is featured on AAAS EurekAlert!, Phys.org, ScienceDaily, Science Bulletin, Naaju, NewsBeezer, RemoNews, Tech2, and LongRoom News. pratt.duke.edu/about/news/chaotic-carbides
MRS Bulletin	August 2017	*Universal fragment descriptor predicts materials properties* cambridge.org/core/journals/mrs-bulletin/news/universal-fragment-descriptor-predicts-materials-properties
UNC Eshelman School of Pharmacy	June 2017	*Breakthrough Tool Predicts Properties of Theoretical Materials, Finds New Uses for Current Ones* • This press release is featured on AAAS EurekAlert!, Phys.org, and ScienceDaily. pharmacy.unc.edu/news/2017/06/06/breakthrough-tool-predicts-properties-theoretical-materials-finds-new-uses-current-ones/
Duke University Pratt School of Engineering	April 2017	*Computers Create Recipe for Two New Magnetic Materials* • This press release is featured on Phys.org, Slashdot, Hacker News, Reddit, Engadget, Engineering.com, Science Alert, Azo Materials, Next Big Future, Futurism, New Atlas, and International Business Times. pratt.duke.edu/about/news/predicting-magnets
MRS Bulletin	April 2015	*Materials fingerprints identified for informatics* doi.org/10.1557/mrs.2015.76
Computational Chemistry Highlights	January 2015	*Materials Cartography: Representing and Mining Materials Space Using Structural and Electronic Fingerprints* compchemhighlights.org/2015/01/materials-cartography-representing-and.html
Duke University Research	January 2015	*Molecular Tornado* research.duke.edu/molecular-tornado
Duke University Graduate School	October 2014	*Competing for NSF Fellowships: Advice from a Current Fellow* gradschool.duke.edu/professional-development/blog/competing-nsf-fellowships-advice-current-fellow
ERN Conference 2013	February 2013	*2013 Oral and Poster Presentation Award Winners* new.emerging-researchers.org/2013-oral-and-poster-presentation-winners

Honors and Awards

Award	2024	Early-Career Investigator Award in Materials Modelling, International Society of Materials Modeling
Publication Award	2024	Editors' Highlight, Publication in Nat. Commun., Springer Nature
Award	2023	Reviewer of the Year, 2022, npj Computational Materials
Publication Award	2022	Editor's Choice, Publication in Comput. Mater. Sci., Elsevier
Publication Award	November 16, 2021	"Hot paper", Publication in Nat. Rev. Mater., Web of Science (Clarivate Analytics) • Published in the past two years and received enough citations in July/August 2021 to place it in the top 0.1% of papers in the academic field of Materials Science
Publication Award	2021	Editors' Highlight, Publication in Nat. Commun., Springer Nature

Publication Award	2018	Editor's Choice, Publication in Comput. Mater. Sci., Elsevier
Publication Award	2017	Editor's Choice, Publication in Comput. Mater. Sci., Elsevier
Award	August 14, 2015	Best Teaching Assistant Award (ME 221), Duke University Department of Mechanical Engineering and Materials Science
Publication Award	2015	Editor's Choice, Publication in Comput. Mater. Sci., Elsevier
Publication Award	2015	Top 10 most highly downloaded papers for the month of January 2015, Publication in Chem. Mater., American Chemical Society
Publication Award	2015	Editors' Choice, Publication in Chem. Mater., American Chemical Society
Fellowship	2013–2016	Graduate Research Fellowship, National Science Foundation
Award	August 22, 2013	Best Presentation Award at the MEMS Departmental Retreat, Duke University Department of Mechanical Engineering and Materials Science
Award	March 02, 2013	First Place in Nanoscience and Physics Research Presentation, NSF / AAAS / EHR Emerging Researchers National Conference
Scholarship	2011–2013	Shell Incentive Fund Scholarship
Scholarship	2010 & 2011	Xerox Corporation Scholarship
Scholarship	2010 & 2011	Intel Academic Award
Grant	June 18, 2010	Cornell University Unmanned Air Systems Team awarded $1,000 grant, AUVSI Student Unmanned Aerial Systems Competition
Scholarship	Fall 2010	Dean's Honor List, Cornell University College of Engineering
Scholarship	2009–2013	Meinig Family Cornell National Scholars

- Awarded by Peter Meinig (Past Chairman of the Board of Trustees at Cornell University)