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## BIOGRAPHICAL SKETCH

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NAME: Gorodetsky, Alon A.

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eRA COMMONS USER NAME: ALONGORO

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POSITION TITLE: Associate Professor

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### EDUCATION/TRAINING

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INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Cornell University, Ithaca, NY	B.S.	05/2003	Materials Science and Engineering Engineering Physics (minor in Electrical and Computer Engineering; minor in Applied Mathematics)
Cornell University, Ithaca, NY	B.S.	05/2003	
California Institute of Technology, Pasadena, CA	PhD	06/2009	Chemistry
Columbia University, New York City, NY	Postdoc	09/2011	Chemistry

### A. Personal Statement

Dr. Alon Gorodetsky is an Associate Professor who leads the Laboratory for Cephalopod-Inspired Materials and Systems in the Department of Chemical and Biomolecular Engineering at the University of California, Irvine. Previously, Dr. Gorodetsky obtained dual B.S. degrees in Engineering Physics and Materials Science at Cornell University and a Ph.D. in Chemistry at the California Institute of Technology. He then completed postdoctoral work as an NSF American Competitiveness in Chemistry Fellow in the Departments of Chemistry and Electrical Engineering at Columbia University. Currently, the Gorodetsky Laboratory is focused on leveraging cephalopod skin cell proteins called reflectins in engineered living materials and regenerative medicine technologies, as well as on manufacturing reconfigurable infrared and thermoregulatory systems for dynamic camouflage and food packaging applications. To date, these efforts have been funded by 26 milestone- and performance-driven grants from the AFOSR, ONR, DARPA, ARPA-E, NSF, and industrial partners. During these projects, Dr. Gorodetsky has advised > 80 postdoctoral, undergraduate, and graduate researchers, and his current group consists of 3 postdoctoral researchers, 13 graduate students, and 2 undergraduate students. He has moreover published 69 impactful articles (h-index of 33 and > 4400 total citations), presented 103 invited seminars, disclosed or patented 9 inventions, and founded 2 companies. This body of work has attracted widespread acclaim and international recognition, with highlights in media outlets that include *Popular Science*, *Popular Mechanics*, *The Times*, *The Guardian*, *The Washington Post*, *The Smithsonian Magazine*, *Wired*, *The Verge*, *Newsweek*, *Forbes*, *NPR*, *BBC*, and *CNN*. Dr. Gorodetsky has also received numerous prestigious accolades, including the AFOSR Young Investigator Award, the DARPA Young Faculty Award with the Director's Option, the Presidential Early Career Award for Scientists and Engineers, the NIH Director's New Innovator Award, and the DARPA Embedded Entrepreneurship Initiative Award.

### B. Positions and Honors

#### (1) Positions and Employment

2009-2011 Adjunct Assistant Professor, Department of Chemistry and Biochemistry,  
Stern College for Women, Yeshiva University, New York, NY

2011-2017 Assistant Professor, Department of Chemical Engineering and Materials Science, Department of Chemistry (0% Joint Appointment), University of California, Irvine, Irvine, CA  
 2017-2019 Associate Professor, Department of Chemical Engineering and Materials Science, Department of Chemistry (0% Joint Appointment), University of California, Irvine, Irvine, CA  
 2019-present Associate Professor, Department of Chemical and Biomolecular Engineering, Department of Materials Science and Engineering (0% Joint Appointment), Department of Chemistry (0% Joint Appointment), University of California, Irvine, Irvine, CA

## (2) Honors, Awards, and Fellowships

2003 Materials Science and Engineering Nanotechnology Fellowship  
 2006-2007 NIH Predoctoral Training Fellowship  
 2009-2010 Columbia University Technology Ventures Fellowship  
 2009-2012 NSF American Competitiveness in Chemistry Fellowship  
 2009-2014 NIH Clinical Research Loan Repayment Fellowship  
 2011-2014 Samuelli Faculty Career Development Professorship  
 2013 ONR Summer Faculty Fellowship  
 2014 AFOSR Young Investigator Award  
 2016 Journal of Materials Chemistry Emerging Investigator Award  
 2016 AFOSR Presidential Early Career Award for Scientists and Engineers  
 2016 DARPA Young Faculty Award  
 2017 ACS Organic Division Young Academic Investigator Symposium Award  
 2018 DARPA Young Faculty Award Director's Option  
 2018 UCI Applied Innovation Early Career Innovator of the Year Award  
 2018 Samuelli School of Engineering Mid-Career Faculty Excellence in Research Award  
 2021 NIH Director's New Innovator Award  
 2022 DARPA Embedded Entrepreneurship Initiative Award

## C. Selected Publications (from 69 published total, with an h-index of 33 and >4400 citations)

1. Chatterjee, A.; Pratakshya, P.; Kwansa, A. L.; Kaimal, N.; Cannon, A. H.; Sartori, B.; Marmioli, B.; Orins, H.; Drake, S.; Couvrette, J.; Le, L.; Bernstorff, S.; Yingling, Y. G.; Gorodetsky, A. A.; Squid Skin Cell-Inspired Refractive Index Mapping of Cells, Vesicles, and Nanostructures, *ACS Biomaterials Science and Engineering*, 2022. Accepted.
2. Badshah, M. A.; Leung, E. M.; Liu, P.; Strzelecka, A. A.; Gorodetsky, A. A.; Scalable Manufacturing of Sustainable Packaging Materials with Tunable Thermoregulability, *Nature Sustainability*, 2022, 5, 434-443.
3. Liu, Y.; Feng, Z.; Xu, C.; Chatterjee, A.; Gorodetsky, A. A.; Reconfigurable Micro- and Nano-Structured Camouflage Surfaces Inspired by Cephalopods, *ACS Nano*, 2021, 15, 17299-17309.
4. Xu, C.; Kandel, N.; Qiao X.; Khan Md. I.; Pratakshya, P.; Tolouei, N. E.; Chen B.; Gorodetsky, A. A.; Long-Range Proton Transport in Films from a Reflectin-Derived Polypeptide, *ACS Applied Materials & Interfaces*, 2021, 13, 20938-20946.
5. Umerani, M. J.; Pratakshya, P.; Chatterjee, A.; Cerna Sanchez, J. A.; Kim, H. S.; Ilc, G.; Kovačič, M.; Magnan, C.; Marmioli, B.; Sartori, B.; Kwansa, A. L.; Orins, H.; Bartlett, A. W.; Leung, E. M.; Feng, Z.; Naughton, K. L.; Norton-Baker, B.; Phan, L.; Long, J.; Allevalo, A.; Leal-Cruz, J. E.; Lin, Q.; Baldi, P.; Bernstorff, S.; Plavec, J.; Yingling, Y. G.; Gorodetsky, A. A.; Structure, Self-assembly, and Properties of a Truncated Reflectin Variant, *Proceedings of the National Academy of Sciences*, 2020, 117, 2891-32901.
6. Chatterjee, A.; Cerna Sanchez, J. A.; Yamauchi, T.; Taupin, V.; Couvrette, J.; Gorodetsky, A. A.; Cephalopod-inspired Optical Engineering of Human Cells, *Nature Communications*, 2020, 11, 2708.
7. Kautz, R.; Phan, L.; Arulmoli, J.; Chatterjee, A.; Kerr, J. P.; Naeim, M.; Long, J.; Allevalo, A.; Leal-Cruz, J. E.; Le, L.; Derakhshan, P.; Tombola, F.; Flanagan, L. A.; Gorodetsky, A. A.; Growth and Spatial Control of Murine Neural Stem Cells on Reflectin Films, *ACS Biomaterials Science and Engineering*, 2020, 6, 1311-1320.
8. Lu, Y.; Pratakshya, P.; Chatterjee, A.; Jia, X.; Ordinario, D. D.; Phan, L.; Cerna Sanchez, J. A.; Kautz, R.; Tyagi, V.; Patel, P.; Van Dyke, Y.; Dao, M. K.; Kerr, J. P.; Long, J.; Allevalo, A.; Leal-Cruz, J.; Tseng, E.;

- Peng, E. R.; Reuter, A.; Couvrette, J.; Drake, S.; Omenetto, F. G.; Gorodetsky, A. A.; Proton Conduction in Inkjet-Printed Reflectin Films, *APL Materials*, 2020, 8, 101113.
9. Xu, C.; Colorado Escobar, M.; Gorodetsky, A. A.; Stretchable Cephalopod-Inspired Multimodal Camouflage Systems, *Advanced Materials*, 2020, 32, 1905717.
  10. Leung, E. M.; Colorado Escobar, M.; Stiubianu, G. T.; Jim, S. R.; Vyatskikh, A. L.; Feng, Z.; Garner, N.; Patel, P.; Naughton, K. L.; Follador, M.; Karshalev, E.; Trexler, M. D.; Gorodetsky, A. A.; A Dynamic Thermoregulatory Material Inspired by Squid Skin, *Nature Communications*, 2019, 10, 1947.
  11. Xu, C.; Stiubianu, G. T.; Gorodetsky, A. A.; Adaptive Infrared-Reflecting Systems Inspired by Cephalopods, *Science*, 2018, 359, 1495-1500.
  12. Chatterjee, A.; Norton-Baker, B.; Bagge, L. E.; Patel, P.; Gorodetsky, A. A.; An Introduction to Color-Changing Systems from the Cephalopod Protein Reflectin, *Bioinspiration & Biomimetics*, 2018, 13, 045001.
  13. Kautz, R.; Ordinario, D. D.; Tyagi, V.; Patel, P.; Nguyen, T. N.; Gorodetsky, A. A.; Cephalopod-Derived Biopolymers for Ionic and Protonic Transistors, *Advanced Materials*, 2018, 30, 1704917.
  14. Kautz, R.; Gorodetsky, A. A.; Revisiting a Classic Inspiration Source: Cephalopod-Derived Materials for Bioelectronics, In "Roadmap on Semiconductor-cell Biointerfaces", *Physical Biology*, 2018, 15, 031002.
  15. Ordinario, D. D.; Leung, E. M.; Phan, L.; Kautz, R.; Lee, W. K.; Naeim, M.; Kerr, J. P.; Aquino, M. J.; Sheehan, P. E.; Gorodetsky, A. A.; Protochromic Devices from a Cephalopod Structural Protein, *Advanced Optical Materials*, 2017, 5, 1600751.
  16. Phan, L.; Kautz, R.; Leung, E. M.; Naughton, K. L.; Van Dyke, Y.; Gorodetsky, A. A.; Dynamic Materials Inspired by Cephalopods, *Chemistry of Materials*, 2016, 28, 6804-6816.
  17. Ordinario, D. D.; Phan, L.; Van Dyke, Y.; Nguyen, T.; Smith, A. G.; Nguyen, M.; Mofid, N. M.; Dao, M. K.; Gorodetsky, A. A.; Photochemical Doping of Protonic Transistors from a Cephalopod Protein, *Chemistry of Materials*, 2016, 28, 3703-3710.
  18. Ordinario, D. D.; Phan, L.; Walkup IV, W. G.; Van Dyke, Y.; Leung, E. M.; Nguyen, M.; Smith, A. G.; Kerr, J.; Naeim, M.; Kymissis, I.; Gorodetsky, A. A.; Production and Electrical Characterization of the Reflectin A2 Isoform from *Doryteuthis (Loligo) pealeii*, *RSC Advances*, 2016, 6, 57103-57107.
  19. Phan, L.; Kautz, R.; Arulmoli, J.; Kim, I. H.; Le, D. T. T.; Shenk, M. A.; Pathak, M. M.; Flanagan, L. A.; Tombola, F.; Gorodetsky, A. A.; Reflectin as a Material for Neural Stem Cell Growth, *ACS Applied Materials and Interfaces*, 2016, 8, 278-284.
  20. Naughton, K. L.; Phan, L.; Leung, E. M.; Kautz, R.; Lin, Q.; Van Dyke, Y.; Marmioli, B.; Sartori, B.; Arvai, A.; Li, S.; Pique, M. E.; Naeim, M.; Kerr, J. P.; Aquino, M. J.; Roberts, V. A.; Getzoff, E. D.; Zhu, C.; Bernstorff, S.; Gorodetsky, A. A.; Self-Assembly of the Cephalopod Protein Reflectin, *Advanced Materials*, 2016, 28, 8405-8412.
  21. Phan, L.; Ordinario, D. D.; Karshalev, E.; Walkup IV, W. G.; Shenk, M. A.; Gorodetsky, A. A.; Infrared Invisibility Stickers Inspired by Cephalopods, *Journal of Materials Chemistry C*, 2015, 3, 6493-6498.
  22. Ordinario, D. D.; Phan, L.; Jocson, J-M.; Nguyen, T.; Gorodetsky, A. A.; Protonic Transistors from Thin Reflectin Films, *APL Materials*, 2015, 3, 014907.
  23. Ordinario, D. D.; Phan, L.; Walkup IV, W. G.; Jocson, J-M.; Karshalev, E.; Hüsken, N.; Gorodetsky, A. A.; Bulk Protonic Conductivity in a Cephalopod Structural Protein, *Nature Chemistry*, 2014, 6, 596-602.
  24. Phan, L.; Walkup IV, W. G.; Ordinario, D. D.; Karshalev, E.; Jocson, J-M.; Burke, A. M.; Gorodetsky, A. A.; Reconfigurable Infrared Camouflage Coatings from a Cephalopod Protein, *Advanced Materials*, 2013, 25, 5621-5625.

#### **D. Selected Research Support (from 26 awards total, with ~ \$ 7 million in current active funding)**

FA9550-17-1-0024                      Gorodetsky (PI)    12/01/16–11/30/22  
 Air Force Office of Scientific Research  
 PECASE: Understanding Structure-Function Relationships in Cephalopod-Inspired Optical Materials

D19AC00003                              Gorodetsky (PI)    12/17/18–11/14/22  
 DARPA (awarded through the Department of the Interior)  
 Cephalopod-Inspired Thermoregulatory Materials

N00014-20-1-2265	Gorodetsky (PI)	04/08/20–04/07/23
Office of Naval Research		
Programmable Assembly of Nanoscale Circuit Components Within Living Cells		
FA9550-20-1-0412	Gorodetsky (PI)	09/30/20–09/29/24
Air Force Office of Scientific Research		
Cephalopod-Inspired Adaptive Invisibility in Living Systems		
N00014-21-1-2143	Gorodetsky (PI)	02/03/21–02/03/24
Office of Naval Research		
Octopus-Inspired Camouflage and Signaling Systems		
1DP2GM146335	Gorodetsky (PI)	09/22/21–09/21/26
National Institute of General Medical Sciences		
Cephalopod-Inspired Bioelectronic Control of Cellular Signaling		
ENTEGRIS221363	Gorodetsky (PI)	01/01/22–12/31/22
Entegris, Inc.		
Synthesis and Properties of Polyquinolines		
N00014-22-1-2294	Gorodetsky (PI)	04/01/22–03/31/23
Office of Naval Research		
A Microscope for Nanoscale Electrical Measurements		
F/U ESS-168-11X-001	Gorodetsky (PI)	06/15/22–06/14/23
Air Force Research Laboratory (subcontract through UES, Inc.)		
Cephalopod-Inspired Autonomous Wearable Systems		