KEVIN V SOLOMON, PH.D.

Thomass & Kipp Gutshall Career Development Associate Professor of Chemical & Biomolecular Engineering
University of Delaware ● 150 Academy St, Newark, DE 19716
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RESEARCH AREAS

Biocatalysis via environmental microbes to deconstruct renewable plant biomass and plastic wastes; synthetic biology tool development to engineer microbes; plant viral-like particles for nanoparticle synthesis and vaccines

EDUCATION

2015 **Postdoctoral Scholar**, Chemical Engineering, University of California, Santa Barbara, CA
Systems Biology of Lignocellulolytic Non-model Anaerobic Fungi
Advisor: Michelle A. O'Malley, Ph.D.

2012 **Ph.D.,** Chemical Engineering, Massachusetts Institute of Technology (MIT), Cambridge, MA
Development of Glucose Valves for Metabolic Eng. Applications in «E. coli»
Advisor: Kristala L. Jones Prather, Ph.D.

2008 **M.S.**, Chemical Engineering Practice, Massachusetts Institute of Technology, Cambridge, MA

2006 **B. Eng**, Chemical Engineering & Bioengineering, McMaster University, Hamilton, ON, Canada
Honors: *Summa cum laude*
Senior thesis: *A novel immobilized enzyme reactor system utilizing the unique inverse phase transition behavior of ELP-fusion proteins*
Advisor: Carlos Filipe, Ph.D.

PROFESSIONAL EXPERIENCE

2023 – present **Associate Professor with tenure**, Chemical & Biomolecular Engineering, University of Delaware
2024 – present *Thomas & Kipp Gutshall Career Development Professor*, Chemical & Biomolecular Engineering
2024 – present *Faculty Affiliate*, Carbon Utilization Redesign for Biomanufacturing-Empowered Decarbonization (CURB) Engineering Research Center (ERC)
2022 – present *Affiliated Faculty*, Delaware Biotechnology Institute
2022 – present *Director*, NIIMBL Workforce Development Training Center for Biopharma Manufacturing
2022 – present *Trainer,* Computational Biology, Bioinformatics, and Biomedical Data Science (i3-CBB) T32 Program
2022 – present *Trainer*, Microbiology Graduate Program
2021 – present *Trainer*, Chemistry-Biology Interface T32 Program
2021 – present *Faculty Affiliate*, Center for Plastics Innovation
2021 – 2023 Assistant Professor, Chemical & Biomolecular Engineering, University of Delaware

2021 – present **Adjunct Professor,** Agricultural & Biological Engineering, Purdue University

2019 – present **Academic Member,** Engineering Biology Research Consortium (EBRC)
2024 – present *Director, Board of Directors/Steering Committee*
2020 – present *Council Member*, EBRC Roadmapping Taskforce & Membership Committees

2016 – 2020 **Assistant Professor,** Agricultural & Biological Engineering, Purdue University
2018 – 2020 *Member*, Purdue Institute of Inflammation, Immunology and Infectious Disease
2017 – 2020 *Faculty Affiliate*, Laboratory of Renewable Resources Engineering (LORRE)
2016 – 2020 *Faculty Affiliate*, Purdue University Interdisciplinary Life Science (PULSe)

2012 – 2015 **Postdoctoral Scholar**, Chemical Engineering, Univ. of California, Santa Barbara (UCSB)

2006 – 2012 **Graduate Research Assistant**, Chemical Engineering, Massachusetts Institute of Technology

2003 – 2006 **NSERC Undergraduate Research Assistant**, Chemical Engineering, McMaster University

SUMMARY OF SCHOLARLY ACTIVITY

- H-index = 22; i10 = 32 (Google Scholar)
- 41 peer-reviewed publications, 22 as senior author
- 3 book chapters
- IP: 5 patents granted, 4 pending, 1 provisional
- 81 invited presentations and seminars
- Contributor to 4 technical roadmaps, 2 policy papers
- Congressional testimony before US Congress
- Directing 13 PhDs, 2 postdocs, 9 undergraduates
- 4 PhDs conferred; 4 MS degrees conferred
- >80 undergraduate projects advised

SELECTED HONORS & AWARDS

2025	**Presidential Early Career Award for Scientists & Engineers (PECASE)**
2023	AIChE Division 15 Early Career Award
2023	*Biochemical Engineering Journal* Young Investigator Award
2023	ACS BIOT Young Investigator Award
2023	Lloyd N. Ferguson Young Scientist Award (NOBCChE)
2022	*Microorganisms* Young Investigator Award
2022	Invited Speaker at National Academy of Engineering (NAE) 2022 US Frontiers of Engineering Symposium, Seattle, WA
2022	SIMB Early Career Award
2022	NSF Faculty Early Career Development (CAREER) Award
2021	Invited participant to NAE 2021 German – American Frontiers of Engineering Symposium, Oak Ridge, TN
2020	Named as one of the 1000 Inspiring Black Scientists in America by Cell Mentor
2019	US Department of Energy Early Career Award
2019	Congressional testimony before the 116th US Congress
2018	Most Outstanding Faculty, Purdue University Residences
2017	Genewiz Empower New Faculty Award

CONSULTING EXPERIENCE

2007	**Pharmaceutical Development**, GlaxoSmithKline, Research Triangle Park, NC
2007	**Process Development**, BASF, Ludwigshafen, Germany

PUBLICATIONS

(* corresponding, ‡ equal contribution, Solomon Lab members, mentored undergrads (iGEM), *mentored undergrads*)

Peer-Reviewed Journal Articles in reverse chronological order
Citations: February 13, 2025, *Google Scholar*, https://scholar.google.com/citations?hl=en&user=UORk8-EAAAAJ

Work as Senior Author

Under review

1. RR Klauer, DA Hansen, ZOG Schyns, LMO Monteiro, JA Moore-Ott, M Williams, M Tarr, J Singh, *A Mhadeshwar*, LTJ. Korley, **KV Solomon*‡**, MA Blenner*‡. Biological polyethylene deconstruction initiated by oxidation from [redacted], *submitted* 1/29/25

2. RR Klauer, R Silvestri, H White, RD Hayes, R Riley, A Lipzen, K Barry, Grigoriev, J Talg, V Bunting, Z Stevenson, **KV Solomon*‡**, MA Blenner*‡, Hydrophobins from *Aspergillus* mediate fungal interactions with microplastics, *submitted* 1/23/25
preprint: https://doi.org/10.1101/2024.11.05.622132

3. CY Chou, JL Liebrata, JW Khansa, SS Huang, AJ Vaidya, M Rammohan, WL Huang, JT Miller, **KV Solomon**, LS Loesch-Fries, MT Harris*, Enhanced Gold Decoration on Palladium Barley Stripe Mosaic Virus Biotemplate, *submitted 11/6/24*

4. MK Parasa‡, M Rammohan‡, L Readnour, *B Rubino*, *J Jeon*, **KV Solomon***, Tunable switch-like control of protein activity via synthetic bacterial biomolecular condensates, *revise and resubmit (initial submission 10/20/24)*

2024

5. AA Stepnov, E Lopez Tavera, RR Klauer, CL Lincoln, RR Chowreddy, GT Beckham, VGH Eijsing, **KV Solomon**, MA Blenner*, G Vaaje-Kolstad*, Revisiting the activity of two poly(vinyl chloride)- and polyethylene-degrading enzymes, *Nature Comm*, 15: 8501 (2024). [**Citations:** 12 **Impact Factor:** 14.7]

6. RR Klauer, DA Hansen‡, D Wu‡, LM Oliveira Monteiro‡, **KV Solomon***, MA Blenner*, Biological Upcycling of Plastic Waste, *Ann Rev Chem Bio Eng*, 15: 14.1-14.28 (2024). [**Citations:** 4 **Impact Factor:** 8.4]

7. B Graver‡, N Chakravarty‡, **KV Solomon***, Prokaryotic argonautes for *in vivo* biotechnology and molecular diagnostics, *Trends in Biotechnology,* 42 (1): 61-73 (2024). [**Citations:** 19 **Impact Factor:** 17.3]

2023

8. AJ Vaidya‡ , M Rammohan‡ , YH Lee‡, KZ Lee‡, CY Chou, *Z Hartley, CA Scott*, *RG Susler*, L Wang, LS Loesch-Fries, MT Harris, **KV Solomon***, Engineering Alkaline-Stable Barley Stripe Mosaic Virus-Like

Particles for Efficient Surface Modification, *Biochemical Engineering Journal,* 199: 109062 (2023). [**Citations:** 1 **Impact Factor:** 3.9]

9. C Hooker, R Hanafy, ET Hillman, J Muñoz, **KV Solomon*,** A genetic engineering toolbox for the lignocellulolytic anaerobic gut fungus *Neocallimastix frontalis*, *ACS Synthetic Biology*, 12 (4): 1034-1045 (2023). [**Citations:** 9 **Impact Factor:** 5.32]

2022

10. ET Hillman, LE Caceres Martinez, G Kilaz, **KV Solomon*,** Top-down enrichment of oil field microbiomes to limit souring and control oil composition during extraction operations. *AIChE Journal*, 68 (12): e17927 (2022). (Invited to the Futures Issue). [**Citations:**4 **Impact Factor:** 4.167]
11. MS Elshahed*, RA Hanafy, Y Cheng, SS Dagar, JE Edwards, V Flad, KO Fliegerová, GW Griffith, S Kittelmann, M Lebuhn, MA O'Malley, SM Podmirseg, **KV Solomon**, J Vinzelj, D Young, and NH. Youssef. Characterization and rank assignment criteria for the anaerobic fungi (Neocallimastigomycota)*, International Journal of Systematic and Evolutionary Microbiology,* 72 (7): 005449 (2022) [**Citations:** 14 **Impact Factor:** 2.4]
12. AJ Vaidya, **KV Solomon***, Surface Functionalization of Rod Shaped Viral-Like Particles for Biomedical Applications, *ACS Applied Bio Materials*, 5 (5): 1980-1989 (2022). (invited to Early Career Forum) [**Citations:** 16 **Impact Factor:** 3.25]
13. KZ Lee‡, MA Mechikoff‡, MK Parasa, *T Rankin, P Pandolfi, K Fitzgerald*, E Hillman, **KV Solomon***, Repurposing the homing endonuclease I-SceI for positive selection and development of gene editing technologies*, ACS Syn Biol*, 11 (1): 53-60 (2022). [**Citations:** 7 **Impact Factor:** 5.11]

2021

14. KZ Lee, MA Mechikoff, *A Kikla, A Liu, P Pandolfi, K Fitzgerald*, F Gimble, **KV Solomon***, NgAgo possesses guided DNA nicking activity, *Nucleic Acids Research*, 49 (17): 9926-9937 (2021). [**Citations:** 29 **Impact Factor:** 16.97]
15. ET Hillman*, E Frazier, E Shank, A Ortiz-Velez*, J Englaender, **KV Solomon***, Anaerobic fungal mevalonate pathway genomic biases lead to heterologous toxicity underpredicted by codon adaptation indices, *Microorganisms,* 9(9):1986 (2021). [**Citations:** 7 **Impact Factor:** 4.17]
16. CL Swift, KB Louie, BP. Bowen, CA Hooker, **KV Solomon**, V Singan, C Daum, CP Pennacchio, K Barry. V Shutthanandan, JE Evans, IV Grigoriev, TR Northen, MA O'Malley*, Co-cultivation of anaerobic fungi with rumen bacteria establishes an antagonistic relationship, *mBio*, 12(4):01442-21 (2021). [**Citations:** 17 **Impact Factor:** 6.78]
17. Beal*, GS. Baldwin*, ….. iGEM Interlab Study Contributors (including E Foster, J Rickus, **KV Solomon**), Comparative analysis of three studies measuring fluorescence from engineered bacterial genetic constructs, *PLoS ONE*, 16(6): e0252263 (2021). [**Citations:** 13 **Impact Factor:** 3.24]
18. ET Hillman, M Li, CA Hooker, J Englaender, IR Wheeldon, **KV Solomon***, Hydrolysis of lignocellulose by anaerobic fungi produces free sugars and organic acids for two-stage fine chemical production with *Kluyveromyces marxianus*, *Biotechnology Progress*, 37 (5): e3172 (2021). [**Citations:** 15 **Impact Factor:** 2.68]
19. C Sweet, A Aayush, LR Readnour, **KV Solomon**, DH Thompson*, Development of a Fast Organic Extraction-Precipitation Method for Improved Purification of Elastin-like Polypeptides that is Independent of Sequence and Molecular Weight. *Biomacromolecules,* 22 (5): 1990-1998 (2021). [**Citations:** 19 **Impact Factor:** 6.99]
20. KZ Lee, V Basnayake Pussepitiya‡, YH Lee‡, LS Loesch-Fries, MT Harris,S Hemmati, **KV Solomon***, Engineering Tobacco Mosaic Virus and its Virus-Like-Particles for Synthesis of Biotemplated Nanomaterials. *Biotechnology Journal*, 16 (4): 200311 (2021). [**Citations:** 51 **Impact Factor:** 3.54]

2020

21. YH Lee‡, KZ Lee‡, *RG Susler, CA Scott,* L Wang, LS Loesch-Fries, MT Harris , **KV Solomon***, Bacterial production of Barley Stripe Mosaic Virus Biotemplates for Palladium Nanoparticle Growth. *Applied Nano Materials*, 3 (12): 12080 - 12086 (2020). [**Citations:** 6 **Impact Factor:** 5.097]

2019

22. C Hooker, KZ Lee*,* **KV Solomon***, Leveraging the biotechnology potential of anaerobic fungi*, Current Opinion in Biotechnology*, 59, 103-110 (2019). (invited) [**Citations:** 49 **Impact Factor:** 9.14]
23. RM RedCorn, ET Hillman, **KV Solomon,** AS Engelberth*, Xanthobacter-dominated biofilm as a novel source for high-value rhamnose, *Applied Microbiobiolgy & Biotechnology*, 103 (11): 4525-4538 (2019). [**Citations:** 8 **Impact Factor:** 3.53]

2018

24. C Hooker, E Hillman, J Overton, *A Ortiz-Velez, M Schacht, A Hunnicutt*, N Mosier, **KV Solomon***, Hydrolysis of untreated lignocellulosic feedstock is independent of S-lignin composition in newly classified anaerobic fungal isolate, *Piromyces* sp. UH3-1. *Biotechnology for Biofuels*, 11:293 (2018). [**Citations:** 25 **Impact Factor:** 5.84]
25. ET Hillman, LR Readnour, **KV Solomon***, Exploiting the natural product potential of fungi with integrated -omics and synthetic biology approaches. *Current Opinion in Systems Biology*, 5: 50-56 (2017). (invited) [**Citations:** 36 **Impact Factor:** 2.90]
26. J Beal*, T Haddock-Angelli*, G Baldwin*, M Gersharter, A Dwijayanti, M Storch, M Lizarazo, R Rettberg, iGEM Interlab Study Contributors (including E Foster, J Rickus, **KV Solomon**), Quantification of Bacterial Fluorescence using Independent Calibrants, *PLoS ONE*, 13(6): e0199432 (2018). [**Citations:** 83 **Impact Factor:** 3.24]

Supervised Work

2021

27. CL Swift, KB Louie, BP Bowen, HM Brewer, SO Purvine, A Salamov, SJ Mondo, **KV Solomon**, AT Wright, TR Northen, IV Grigoriev, NP Keller, MA O'Malley*, Anaerobic gut fungi are an untapped reservoir of natural products, *PNAS*, 118 (18): e2019855118 (2021). [**Citations:** 56 **Impact Factor:** 11.20]

2018

28. **KV Solomon**, JK Henske, SP Gilmore, A Lipzen, IV Grigoriev, D Thompson, MA O'Malley*. Catabolic repression in early-diverging anaerobic fungi is partially mediated by natural antisense transcripts. *Fungal Genetics & Biology*, 121:1-9 (2018). [**Citations:** 14 **Impact Factor:** 3.495]
29. JK Henske, SP Gilmore, CH Haitjema, **KV Solomon***, MA O'Malley*. Biomass-degrading enzymes are catabolite-repressed in anaerobic gut fungi, *AIChE J*, 64 (12): 4263-4270 (2018). (Invited Article, Founders Issue Honoring Jay Bailey) [**Citations:** 44 **Impact Factor:**4.01]
30. JK Henske, SE Wilken, **KV Solomon**, CE Smallwood, V Shutthanandan, JE Evans, MK Theodorou, MA O'Malley, Metabolic characterization of anaerobic fungi provides a path forward for consolidated bioprocessing of crude lignocellulose, *Biotechnology & Bioengineering*, 115 (4): 874-884 (2018). [**Citations:** 69 **Impact Factor:** 4.53]

2017

31. SP Gilmore, JK Henske, JA Sexton, **KV Solomon** , S Seppälä, JI Yoo, LM Huyett, A Pressman, JZ Cogan, V Kivenson, X Peng, YP Tan, DL Valentine, MA O'Malley*. Genomic analysis of methanogenic archaea reveals a shift towards energy conservation, *BMC Genomics*,18: 639 (2017). [**Citations:** 59 **Impact Factor:** 3.969]
32. S Seppälä, SE Wilken, D Knop, **KV Solomon**, MA O'Malley*. The importance of sourcing enzymes from non-conventional fungi for metabolic engineering & biomass breakdown, *Metabolic Engineering*, 44: 45-59 (2017). (invited). [**Citations:** 71 **Impact Factor:** 7.808]
33. CH Haitjema, SP Gilmore, JK Henske, **KV Solomon**, R de Groot, A Kuo, S Mondo, AA Salamov, K LaButti, Z Zhao, J Chinquy, K Barry, HM Brewer, SO Purvine, AT Wright, B Boxma, T van Alen, JHP Hackstein, SE Baker, K Barry, IV Grigoriev, MA O'Malley*, A Parts List for Fungal Cellulosomes Revealed by Comparative Genomics. *Nature Microbiology*, 2:17087, (2017). [**Citations:** 227 **Impact Factor:** 17.74]

2016

34. S Seppälä, **KV Solomon**, SP Gilmore, JK Henske, MA O'Malley*, Mapping the membrane proteome of anaerobic gut fungi identifies a wealth of carbohydrate binding proteins and transporters. *Microbial Cell Factories,* 15: 212, (2016). [**Citations:** 31 **Impact Factor:** 5.14]
35. **KV Solomon,** *E Ovadia*, F Yu, W Mizunashi, MA O'Malley*. Mitochondrial targeting increases specific activity of a heterologous valine assimilation pathway in *Saccharomyces cerevisiae*. *Metabolic Engineering Communications,* 3:68-75, (2016). [**Citations:** 2 **Impact Factor:** 4.897]
36. GJ Li et. al (+140 additional authors, including **KV Solomon**, JK Henske, CH Haitjema, SP Gilmore, MK Theodorou, MA O'Malley), Fungal diversity notes 253-366: taxonomic and phylogenetic contributions to fungal taxa. *Fungal Diversity*, 78 (1): 1-237, (2016). [**Citations:** 917 **Impact Factor:** 15.39]
37. **KV Solomon,** JK Henske, MK Theodorou, MA O'Malley*. Robust and effective methodologies for cryopreservation and DNA extraction from anaerobic gut fungi. *Anaerobe,* 38: 39 – 46, (2016) [**Citations:** 37 **Impact Factor:** 3.331]
38. **KV Solomon**, CH Haitjema, JK Henske, SP Gilmore, D Borges-Rivera, A Lipzen, HM Brewer, SO Purvine, AT Wright, MK Theodorou, IV Grigoriev, A Regev, DA Thompson, MA O'Malley*. Early-

branching gut fungi possess a large, comprehensive array of biomass degrading enzymes. *Science*, 351 (6278): 1192 - 1195, (2016). ***– featured in popular press such as BBC, CNBC, Forbes, Newsweek, Phys.org and Science 2.0, and highlighted in Trends in Biochemical Science, Nature Biotech, and Nature Reviews Microbiology*** [**Citations:** 320 **Impact Factor:** 47.728]

2014

39. **KV Solomon**, CH Haitjema, DA Thompson, MA O'Malley*. Extracting data from the muck: deriving biological insight from complex microbial communities and non-model organisms with next generation sequencing. *Current Opinion in Biotechnology*, 28:103-110, (2014). (invited) [**Citations:**43 **Impact Factor:** 9.14]

40. CH Haitjema, **KV Solomon**, JK Henske, MK Theodorou, MA O'Malley*. Anaerobic Gut Fungi: Advances in Isolation, Culture, and Cellulolytic Enzyme Discovery for Biofuel Production. *Biotechnology and Bioengineering*, 8(111): 1471-1482, (2014). (invited) [**Citations:** 166 **Impact Factor:** 4.53]

2013

41. **KV Solomon,** TS Moon, *B Ma, TM Sanders*, KLJ Prather*.Tuning primary metabolism for heterologous productivity. *ACS Synthetic Biology,* 2(3):126-135, (2013). – ***Top 10 most read of Q2 2013*** [**Citations:** 35 **Impact Factor:** 5.32]

2012

42. **KV Solomon,** *TM Sanders,* KLJ Prather*. A dynamic metabolite valve for the control of central carbon metabolism. *Metabolic Engineering*, 14(6): 661-671, (2012). [**Citations:** 127 **Impact Factor:** 7.808]

2011

43. **KV Solomon** and KLJ Prather*. The zero-sum game of pathway optimization: Emerging paradigms for tuning gene expression. *Biotechnology Journal,* 6(9): 1064-1070, (2011). (invited) [**Citations:** 33 **Impact Factor:** 3.54]

2009

44. CH Martin, DR Nielsen, **KV Solomon** & KLJ Prather*. Synthetic Metabolism: Engineering Biology at the Protein and Pathway Scales. *Chemistry & Biology,* 16: 277-286, (2009). (invited) [**Citations:** 105 **Impact Factor:** 8.116]

2008

45. E Leonard, D Nielsen, **K Solomon,** & KJ Prather*. Engineering microbes with synthetic biology frameworks. *Trends in Biotechnology,* 26: 674-681, (2008). (invited) [**Citations:** 98 **Impact Factor:** 19.536]

Technical Conference Papers & Published Editorials

1. CS Adjiman*, P Angeli*, … **K Solomon*** et al, Exploring the potential landscape of chemical engineering science, *Nature Chemical Engineering* (2025). https://doi.org/10.1038/s44286-025-00172-3
2. ER Aurand*, TS Moon, NR Buan, **KV Solomon**, M Köpke, EBRC Technical Roadmapping Working Group, Addressing the Climate Crisis Through Engineering Biology, *npj Climate Action,* 3, 9 (2024).
3. TS Moon, **KV Solomon**, I Borodina, C Vickers, Impacting future generations of synthetic biologists by ensuring diversity, equity, and inclusion, *Trends in Biotechnology*, 41 (9): 1099-1105 (2023). [**Citations:** 1 **Impact Factor:** 17.3]
4. R Klauer, MA Blenner, **KV Solomon***, Life…Finds a Way": Sustainable Capture and Upcycling of Plastics by Microbes, *The Bridge*, 52 (4): 14-18 (2022).
5. ED Lee, ER Aurand*, DC Friedman, EBRC Microbiomes Roadmapping Working Group (including E Hillman, **KV Solomon**). Engineering Microbiomes—Looking Ahead, *ACS Synthetic Biology*, 9 (12): 3181-3183, (2020).
6. K Atherton, VK Chang, K Fitzgerald, A Kikla, C Roleck*, A Santos, E Hillman, KZ Lee, S Lee, P Lengemann, J Rickus, **K Solomon**. Engineering the lung microbiome to degrade inhaled carcinogens, *PLoS iGEM Reports*, (2018).
7. S Mohan, C Roleck, P Rudin, B Clark, E Foster, A Kikla, S Magill, M Aronson, R Budde, H Kubo, A Liu, H Lysandrou, C Martin, A Petrucciani, J Welch, S Ha, J Rickus, & **K Solomon**. Engineering *E. coli* for phosphate bioremediation with genes from polyphosphate-accumulating organism *Microlunatus phosphovorus, PLoS iGEM Report* 17-05, (2017). http://blogs.plos.org/collections/igem-report-17-05/
8. **KV Solomon*.** 4th International Conference on Biomolecular Engineering Tackles New Challenges with Synthetic Biology. *ACS Synthetic Biology,* 2(2):68-71, (2013).

Book Chapters

1. MA Mechikoff‡, KZ Lee‡, **KV Solomon***. Positive Selection Screens for Programmable Endonuclease Activity using I-SceI, in: Synthetic Biology - Methods and Protocols, Second Edition (Methods in Molecular Biology series, vol 2760), p 253-260. ed by Jeffrey Braman, 2024. (Springer)

2. V Dollhofer*, D Young, SM Podmirseg, M Reilly, Y Li, C Hooker, **K. Solomon,** M Elshahed, N Youssef, K Fliegerová, Y Chen, GW Griffith, MK Theodorou, M O'Malley. The biotechnological potential of anaerobic gut fungi, in: Genetics and Biotechnology. The Mycota (A Comprehensive Treatise on Fungi as Experimental Systems for Basic and Applied Research), vol 2, p. 413-437 ed. by J. Philipp Benz and Kerstin Schipper, 2020 (Springer). [**Citations**: 20]

3. M Ladisch, E Ximenes, N Mosier, A Engelberth, **K Solomon**, Bioprocess Engineering, in: Industrial Microbiology, 1st ed., ed. by DB Wilson, H Sahm, KP Stahmann, M Koffas, 2020 (Wiley).

Technology Roadmaps & Policy White Papers

1. Engineering Biology Research Consortium, Engineering Biology for Space Health: An Innovative Research Roadmap (2024). https://roadmap.ebrc.org/engineering-biology-for-space-health/
2. Engineering Biology Research Consortium, EBRC Policy Papers In Response To The 2022 Bioeconomy Executive Order (2022). https://ebrc.org/publications-2022eo-compilation/
3. Engineering Biology Research Consortium, Translational Research For Breakthrough Technologies: Advancing Engineering Biology To Address Societal Needs At NSF (2022). https://ebrc.org/translational-research-for-breakthrough-technologies-advancing-engineering-biology-to-address-societal-needs/
4. Engineering Biology Research Consortium, Engineering Biology for Climate & Sustainability: A Research Roadmap for a Cleaner Future (2022). https://roadmap.ebrc.org/engineering-biology-for-climate-sustainability
5. Engineering Biology Research Consortium, Engineering Biology & Materials Science: A Research Roadmap for Interdisciplinary Innovation (2021). https://roadmap.ebrc.org/2021-roadmap-materials/
6. Engineering Biology Research Consortium, Microbiome Engineering: A Research Roadmap for the Next-Generation Bioeconomy (2020). https://roadmap.ebrc.org/2020-roadmap-microbiomes/

CONGRESSIONAL TESTIMONY

1. Engineering Our Way to a Sustainable Bioeconomy: Hearings before the House Science, Space, and Technology Subcommittee on Research and Technology, US House of Representatives, 116th Congress (2019) (Testimony of **Kevin Solomon**). https://www.congress.gov/event/116th-congress/house-event/109051

PATENTS AND TECHNOLOGY DISCLOSURES

Patents Granted

1. **Kevin Solomon,** Kok Zhi Lee, Michael Harris, Yu-Hsuan Lee, Loretta Sue Loesch-Fries. Nanoparticles And Biotemplates With Tunable Length And Methods Of Manufacturing The Same, US Patent 11,820,988, issued 21 Nov 2023.
2. **Kevin Solomon**, Kok Zhi Lee, Ethan Hillman, Yu Hong Wang. Tunable, synthetic transcriptional regulators responsive to environmental triggers, US Patent 11,352,632, issued 7 June 2022.
3. Michelle A. O'Malley, **Kevin V. Solomon**, and Charles H. Haitjema. Proteins from Anaerobic Fungi and Uses Thereof, US Patent 10, 717, 768, issued 21 Jul 2020. (Licensed to CogniTek)
4. Michelle A. O'Malley, **Kevin V. Solomon,** Wataru Mizunashi, Fujio Yu. Bioproduction of Methyl Methacrylate, US Patent 10, 676, 766, issued 9 Jun 2020. (Licensed in 2018 by Mitsubishi-Rayon)
5. **Kevin Solomon,** Tae Seok Moon, Kristala L Prather. Glucose Valves and other Metabolite Valves, US Patent 8,835,138, issued 16 Sep 2014.

Patents pending

6. Mark Blenner, **Kevin Solomon,** Ross Klauer. Biological and biomolecular recovery of plastic waste, Disclosure UD 23-11 filed November 7, 2022, US Provisional Patent Application 63/564,161 filed March 12, 2024.
7. **Kevin Solomon,** Kok Zhi Lee, Akash Vaidya, Mruthula Rammohan, *Continuation patent application to*: Nanoparticles And Biotemplates With Tunable Length And Methods Of Manufacturing The Same, US Provisional Patent Application 18/516,243, filed 21 Nov 2023.
8. Mark Blenner, **Kevin Solomon**, Lummy Monteiro, Jyoti Singh, Ross Klauer. Improved plastic degradation by darkling beetle larvae, microbes and enzymes, US Provisional Patent Application 63/336,657, filed April 29, 2022. Patent pending
9. **Kevin Solomon**, Kok Zhi Lee. NgAgo as a DNA-guided gene editing tool in prokaryotes and eukaryotes, US Provisional Patent Application 62/643,814, filed Mar 2018. Patent pending

SELECTED PUBLICITY, QUOTES, AND FEATURED ARTICLES

1. Two UD researchers receive presidential career awards, ***UDaily***, January 21, 2025, https://www.udel.edu/udaily/2025/january/presidential-career-award-tingyi-gu-kevin-solomon/
2. Zombie Fungus from "The Last of Us" Spurs Increased Interest in Fungal Research, ***EMSL News***, April 12, 2023, https://www.emsl.pnnl.gov/news/zombie-fungus-from--the-last-of-us--spurs-increased-interest-in-fungal-research/15105
3. Tackling Plastic Waste, ***UDaily***, January 18,2023, https://www.udel.edu/udaily/2023/january/plastic-degrading-microbes-mealworms-mark-blenner-engineering/
4. S3 Episode 1: Chomping Toward Better Plastic Recycling, ***Genome Insider*****,** July 28, 2022, https://jgi.doe.gov/genome-insider-s3-episode-1-chomping-toward-better-plastic-recycling/
5. Mealworms: A plastic pollution solution, ***You Oughta Know – WHYY TV***, April 15, 2022, https://youtu.be/3Ulxja0JE2s
6. What to do about trash, ***Tumble Science Podcast for Kids***, April 15, 2022, https://www.sciencepodcastforkids.com/single-post/what-to-do-about-trash
7. Digging for cures, ***UDaily***, March 31, 2022, https://www.udel.edu/udaily/2022/march/kevin-solomon-nsf-career-award-national-science-foundation-gene-editing/

MOST RECENT INVITED SEMINARS (last 2 years; total = 27 invited seminars**)**

1. "HIDDEN FIGURES: Gut microbes and their metabolism that promise efficient carbon cycling for sustainable biomanufacturing", MIT Biological Engineering Departmental Seminar, October 2024.
2. "HIDDEN FIGURES: Gut microbes and their metabolism that promise efficient carbon cycling for sustainable biomanufacturing", University of Maryland College Park Chemistry & Biochemistry Departmental Seminar, September 2024.
3. "Engineering barley stripe mosaic virus-like particles as a platform for nanomaterial synthesis", George Mason University, April 2024
4. "Discovery of enzymes for plastics degradation", Pacific Northwest National Lab (PNNL), April 2024
5. "Microbial solutions for capturing and upcycling waste carbon in recalcitrant polymers," Winter Departmental Seminar Series, Chemical Engineering, University of Washington, January 2024.
6. "Microbial solutions for capturing and upcycling waste carbon in recalcitrant polymers," Winter Departmental Seminar Series, Chemical Engineering, University of Florida, January 2024.
7. "Prokaryotic Argonautes: Programmable DNA Endonucleases for Biotech," Technical Seminar Series, New England Biolabs, December 2023.
8. "Prokaryotic Argonautes as Alternatives for Gene Editing", The Grove Virtual Seminar (hosted by Ginkgo Bioworks), May 2023 https://www.youtube.com/watch?v=SAyHgkCPEfc
9. "Microbial solutions for capturing and upcycling waste carbon in recalcitrant polymers," Spring Departmental Seminar Series, Chemical & Biological Engineering, Princeton University, April 2023
10. "DEGRADATION OF NATURAL AND SYNTHETIC POLYMERS: Mining gut microbiomes for new enzymes,", Codexis, Inc. Virtual Seminar Series, April 2023.

MOST RECENT INVITED LECTURES AND CONFERENCE PRESENTATIONS (last 2 years; total = 45**)**

1. "Molecular approaches to manipulate anaerobic fungi", International Anaerobic Fungal Congress ***Keynote***, virtual, October 2024
2. "Developing a genetic toolbox for anaerobic fungi," 12th International Mycological Congress, Maastricht, The Netherlands, August 2024
3. "Prokaryotic Argonautes: Programmable DNA Endonucleases for Synthetic Biology," Cold Spring Harbor Synthetic Biology Summer Course, Cold Spring Harbor, NY, July 2024
4. "HIDDEN FIGURES: Gut microbes that promise efficient carbon cycling for sustainable biomanufacturing", ECI Biochemical & Molecular Engineering Conference, Dublin, Ireland, July 2024.
5. "Enzyme discovery for degradation of recalcitrant polymers", Boston University 17th Annual Bioinformatics Student-Organized Symposium ***Keynote***, Boston, MA, June 2024.

6. “HIDDEN FIGURES: The microbes that promise to sustainably deconstruct and upcycle nonhydrolyzable plastcis wastes”, ACS Annual Spring Meeting, New Orleans, LA, March 2024
7. “Hydrophobic Biomolecular Condensates to Control Cellular Behavior”, Biophysical Society Intrinsically Disordered Proteins (IDP) Subgroup Symposium, Philadelphia, PA, February 2024.
8. “Barley Strip Mosaic Virus-Like Particles as Biotemplates for Mineralization of Metallic Nanoparticles,” 2023 NSF Nanoscale Science and Engineering Grantees Conference, Alexandria, VA, December 2023.
9. “pAgos: Novel programmable DNA endonucleases as the basis of next gen tools,” MCB CAREER Awardee Conference, Alexandria, VA, November 2023.
10. “Environmental microbes for efficient (re)use of renewable feedstocks and consumer wastes in biomanufacturing,” 2023 AIChE Annual Meeting, Orlando, FL, November 2023. (**Division 15 Young Investigator Award Lecture**)
11. “Discovery and characterization of LDPE degrading enzymes and microbes from the yellow mealworm”, NOBCChE Annual Meeting, New Orleans, LA, September 2023 (invited for *Lloyd N Ferguson Young Scientist Award*)
12. “Bacterial biomolecular condensates for control of protein activity,” ACS Annual Fall Meeting, San Francisco, CA, August 2023. (invited for *BIOT Young Investigator Award*)
13. “Prokaryotic Argonautes and the quest for more flexible gene editing technologies,” Synthetic Biology Gordon Research Conference, Sunday River, ME, July 2023.
14. “Harnessing Lignocellulolytic Anaerobic Fungi for Metabolic Engineering”, Metabolic Engineering XV, Singapore, June 2023.
15. “Developing Prokaryotic Argonautes as Alternatives for Gene Editing,” 2023 Synthetic Biology: Engineering, Evolution & Design (SEED), Los Angeles, CA, June 2023
16. “Discovery and characterization of LDPE degrading enzymes and microbes from the yellow mealworm,” Society for Industrial Microbiology and Biotechnology (SIMB) 45th Symposium on Biomaterials, Fuels, and Chemicals, Portland, OR, May 2023.
17. “Discovery of Distributed Pathways for Plastic Conversion in the Yellow Mealworm Microbiome,” Department of Energy 2023 Genomic Sciences Program (GSP) Annual Principal Investigator (PI) Meeting, Bethesda, MD, April 2023.
18. “Biodegradation Of Polyolefins via the Yellow Mealworm Gut Microbiome,” Visions for Sustainable Polymers, Georgia Tech Polymer Network and the Renewable Bioproducts Institute, Atlanta, GA, April 2023.
19. “Prokaryotic Argonautes As Alternatives For Gene Editing,” 12th International Conference on Biomolecular Engineering, Santa Barbara, CA, January 2023.

MOST RECENT CONTRIBUTED PRESENTATIONS (*speaker, Solomon Lab members, *undergrads;* **last 2 years**)

1. J Ott, R Klauer*, A Hansen, N Miller, H Hall, N Reichart, A Wright, M Blenner, **KV Solomon.** “Engineering and Systems Biology of Robust Gut Microbial Communities for Polyolefin Degradation”, AIChE Annual Meeting, San Diego, CA, October 2024
2. R Klauer*, A Hansen, L Monteiro, Z Schyns, J Singh, L Korley, **KV Solomon,** M Blenner. “Polyethylene Deconstruction Initiated By Ldpe-Oxidases from Yellow Mealworm Gut Microbiota”, AIChE Annual Meeting, San Diego, CA, October 2024
3. AJ Vaidya*, M Rammohan*, J Patel, E Gillen, R Logue*, **KV Solomon**. “Repurposing Barley-Stripe Mosaic Virus as a Nanoparticle Vaccine Platform”, AIChE Annual Meeting, San Diego, CA, October 2024
4. JA Ott*, R Klauer, ZOG Schyns, L Korley, M Blenner, **KV Solomon**. Better Together: Interkingdom microbial communities for LDPE degradation”, EBRC Annual Meeting, Atlanta, GA, May 2024
5. A Hansen, R Klauer*, H Hall, *A Mhadeshwar,* L Monteiro, N Reichart, S Krishnamoorthy, A Wright, M Blenner, **KV Solomon.** “Discovery of polyethylene-degrading enzymes (‘PE-ases’) from yellow mealworm gut microbiota,” ACS Annual Spring Meeting, New Orleans, LA, March 2024
6. R Klauer*, **KV Solomon**, M Blenner. “Recovery of microplastics from aqueous environments via hydrophobins from fungal isolates,”, ACS Annual Spring Meeting, New Orleans, LA, March 2024.

7. L Monteiro, J Singh, R Klauer, A Hansen, S Krishnamoorthy, A Wright, M Blenner, **KV Solomon***. "Integrated omics and chemical biology approaches reveal novel polyolefin-degrading microbial communities and isolates," AIChE Annual Meeting, Orlando, FL, November 2023.
8. L Monteiro, J Singh, R Klauer, A Hansen, S Krishnamoorthy, A Wright, M Blenner, **KV Solomon***. "Integrated omics and chemical biology approaches reveal novel polyolefin-degrading microbial communities and isolates," ACS Annual Fall Meeting, San Francisco, CA, August 2023.
9. C Hooker, R Hanafy, E Hillman, **K Solomon***. "Domesticating anaerobic fungi for CAZyme overproduction and direct biomanufacturing from renewable plant biomass," SIMB Annual Meeting, Minneapolis, MN, August 2023
10. R Klauer, L Monteiro, A Hansen, J Singh, **KV Solomon,** M Blenner***.** Discovery of microbial communities, microbial isolates, and enzymes for biodegradation of polyolefins and polystyrene, SIMB Annual Meeting, Minneapolis, MN, Aug 2023.
11. AJ Vaidya*, M Rammohan, CH Chou, *J Donlevie*, *J Patel*, *E Gillen*, **KV Solomon**. Tuning the Immunogenicity of Barley Stripe Mosaic Virus-Like Particles by Surface Engineering, EBRC Annual Meeting, Evanston, IL, 2023
12. R Klauer*, L Monteiro, J Singh, M Blenner, **KV Solomon.** Discovery of polyethylene degradation processes from the digestive system of the yellow mealworm, EBRC Annual Meeting, Evanston, IL, 2023
13. R Klauer*, L Monteiro, J Singh, M Blenner, **KV Solomon.** Discovery of polyethylene degrading microbes and enzymes from the gut of the yellow mealworm, Society for Industrial Microbiology and Biotechnology (SIMB) 45th Symposium on Biomaterials, Fuels, and Chemicals, Portland, OR, May 2023.

MOST RECENT POSTER PRESENTATIONS (*speaker; *mentored undergrad*; Solomon Lab member; **last 2 years**)

1. *A Kalan**, B Graver, **KV Solomon. "**Engineering a Mesophilic Prokaryotic Argonaute for Transcriptional Regulation", AIChE Annual Meeting, San Diego, CA, October 2024
2. R Klauer*, LM Oliveira Monteiro, A Hansen, Z Schyns, J Ott*, M Tarr, M Williams, J Singh, L Korley, **KV Solomon**, M Blenner. Polyethylene deconstruction initiated by enzymatic oxidation from yellow mealworm gut microorganisms, ECI Biochemical & Molecular Engineering, Dublin, Ireland, 2024.
3. MH Yen*, **KV Solomon.** Microbial Foundry for Scalable ssDNA Production, 2024 Synthetic Biology: Engineering, Evolution & Design (SEED), Atlanta, GA, 2024
4. N Chakravarty*, B Graver, **KV Solomon.** Elucidating the Heterocomplexes of Prokaryotic Argonautes for In Vivo Gene Editing Technologies, 2024 Synthetic Biology: Engineering, Evolution & Design (SEED), Atlanta, GA, 2024
5. B Graver*, *A Kalan*, **KV Solomon**. Identifying optimal prokaryotic Argonaute candidates for in vivo biotechnology application, 2024 Synthetic Biology: Engineering, Evolution & Design (SEED), Atlanta, GA, 2024
6. M Rammohan*, AJ Vaidya, *J Patel, E Gillen*, *R Logue*, **KV Solomon.** Engineering recombinant barley stripe mosaic virus-like particles as vaccine nanocarriers, EBRC Annual Meeting, Atlanta, GA, 2024
7. A Hansen*, R Klauer, *A Mhadeshwar,* M Blenner, **KV Solomon**. Elucidation of yellow mealworm gut microbiomes polyethylene biodegradation pathways, EBRC Annual Meeting, Atlanta, GA, 2024
8. R Barlow*, **KV Solomon**. Developing *Clostridium butyricum* Argonaute (CbAgo) for gene editing applications in eukaryotes, EBRC Annual Meeting, Atlanta, GA, 2024
9. R Klauer, A Hansen*, J Ott*, LM Oliveira Monteiro, J Singh, H Hall, N Reichart, S Krishnamoorthy, A Wright, M Blenner, **KV Solomon**. Plastic degradation and upcycling by the gut microbiome of yellow mealworms, DOE Annual GSP PI Meeting, Rockville, MD, 2024.
10. R Klauer, A Hansen, J Ott*, LM Oliveira Monteiro, ZOG Schyns, B Alexander, M Melesse Vergara, R Zhao, Y Tang, LTJ Korley, A Guss, C Eckert, **KV Solomon**, M Blenner. Developing chassis for LDPE upcycling from microbes native to the gut microbiome of yellow mealworms, DOE Annual GSP PI Meeting, Rockville, MD, 2024.
11. K Khim*, M Pareek, R Hanafy, C Hooker, **KV Solomon**. Developing Anaerobic Fungal Tools for Efficient Upgrading of Lignocellulosic Feedstocks, DOE Annual GSP PI Meeting, Rockville, MD, 2024.
12. C Pirner*, D Pedada, MA Blenner, **KV Solomon**. The Feasibility of Emerging non-CRISPR Gene Editing Platforms for CHO Cell Engineering, AMBIC Winter Meeting, Clemson, SC, 2024.
13. B Graver*, *D Carman,* **KV Solomon.** Identifying an Optimal Mesophilic Prokaryotic Argonaute for Synthetic Biology, EBRC Annual Meeting, Evanston, IL, 2023
14. MH Yen*, **KV Solomon**. Microbial Foundry for Scalable ssDNA production, EBRC Annual Meeting, Evanston, IL, 2023.

15. M Pareek*, R Hanafy, C Hooker, E Hillman, J Muñoz Briones, **KV Solomon.** Developing Anaerobic Fungal Tools for Efficient Upgrading of Lignocellulosic Feedstocks, DOE Annual GSP PI Meeting, Rockville, MD, 2023.

TEACHING

UD Chemical & Biomolecular Engineering

Date	Course	Title	Course Enrollment
F 2021 - 2024	CHEG332	Chemical Engineering Kinetics	~75 UG
Sp 2022 - 2024	CHEG840[Δ]	Rate Processes & Dynamics for Microbial Systems	~19 G/UG

[Δ]New course developed at the University of Delaware

Purdue Agricultural & Biological Engineering

Date	Course	Title	Course Enrollment
F 2016 - 2018	ABE591[#]	Principles of Systems & Synthetic Biology	~15 G/UG
Sp 2017 - 2020	ABE 440	Cell & Molecular Design Principles	~30 UG
Sp 2017	AGR493I	Ag Study Abroad: Ireland Spring Break	36 UG
Su 2019		Industrial Microbial Biotechnology in Germany	
F 2019 - 2020	ABE 540	Principles of Systems & Synthetic Biology	~13 G/UG

[#]New course developed at Purdue. Transitioned to the permanent course number ABE 540

TEACHING TRAINING

2020 **PREP (Professors Reviewing Excellent Practices**), Purdue University, West Lafayette, IN
2018 **Fellow, Teaching for Tomorrow program**, Purdue University, West Lafayette, IN
2016 Attendee, ***Effective Teaching Workshop*** by Prof. Richard Felder & Dr. Rebecca Brent
2012 – 2015 **Guest Lecturer**, UCSB – invited lectures on synthetic biology, transcriptomics & chemical kinetics
2012 **Trainee, Graduate Student Teaching Certificate,** MIT Teaching and Learning Laboratory, Cambridge, MA
2010 **Lab Instructor**, MIT iGEM Team, MIT, Cambridge MA
2010 **Instructor & Course Development**, Molecular Biology Lab Fundamentals Bootcamp, Synthetic Biology Engineering Research Center (SynBERC), Cambridge, MA
2009 **Teaching Assistant**, ICE I – Continuous Process Design, MIT, Cambridge, MA
2005 **Teaching Assistant**, Problem Solving & Technical Comm., McMaster University, Hamilton, ON, Canada
2005 **Teaching Assistant**, Introduction to Professional Engineering, McMaster University, Hamilton, ON, Canada

STUDENTS AND MENTORSHIP

Advisor

- Charter School of Wilmington High School iGEM Team – provide technical and material support to team of 15 enthusiastic high school researchers developing biological systems to address grand engineering challenges and compete in the International Genetically Engineered Machines Competition

YEAR	PROJECT	ACHIEVEMENT
2024	Improving plant CO_2 capture efficiency via Rubisco activator engineering	Bronze Medal

- Faculty advisor to 19 students from the UD CBE Class of '25 (**2021 – present**)
- AIChE Student Chapter (**2021**) – faculty advisor to this student academic/professional development club affiliated with AIChE
- Faculty academic advisor (**2017 – 2020**) to ~40 students/year enrolled in Agricultural & Biological Engineering
- Purdue iGEM Team (**2016 – 2020)** – provide technical and material support to team of 7 independent undergraduate researchers developing microbial systems to address grand engineering challenges and compete in the International Genetically Engineered Machines Competition

YEAR	PROJECT	ACHIEVEMENT
2016	Phosphorus reclamation via engineered *E. coli*	Silver Medal
2017	Benzene degradation via engineered lung microbiome treatment	Silver Medal
2018	Low cost, paper based diagnostic test for yeast infections	Bronze Medal
2019	Biological Control of Rice Blast Fungus in Crops	Bronze Medal
2020	Argonaute-based diagnostic assay for COVID-19	Gold Medal

- Soybean Product Innovation Competition (**2016 – 2017**) – provide technical and material support to team of 4 undergraduate/graduate students developing novel soy-based products (2016 – compostable toothbrushes; 2017 – biodegradable prescription bottles)

- Society of Biological Engineers (**2016 – 2020**) – faculty advisor to this student academic/professional development club affiliated with AIChE's SBE

Current Trainees

2020 – present	Akash Vaidya	CBE PhD Candidate | 2022 GAANN Teaching Fellow | 2024 Teaching Fellow
2021 – present	Ming Hung Yen	CBE PhD Candidate
2022 – Present	Ross Klauer	CBE/CBI PhD Student | DENIN Fellow – coadvised with Mark Blenner
2022 – present	Brett Graver	BISC PhD Student | 3rd Place 2024 Carson Best Graduate Student Paper Award in BISC
2022 – present	Namrata Chakravarty, PhD	Postdoctoral Research Associate
2022 – present	Robert Barlow	CBE PhD Student
2022 – present	David (Alex) Hansen	CBE PhD Student | 2024 GAANN Teaching Fellow – coadvised with Mark Blenner
2022 – present	Mruthula Rammohan	CBE PhD Student
2023 – present	Jenna Ott, PhD	ASEE eFellows Postdoctoral Fellow
2023 – present	Ben Alexander	CBE PhD Student
2023 – present	Raine Hagerty	CBE PhD Student
2023 – present	Nathan Miller	CBE PhD Student – coadvised with Mark Blenner
2023 – present	Hayeon Park	CBE PhD Student – coadvised with Wilfred Chen
2023 – present	Samiha Zaman	CBE PhD Student
2024 – present	Talent Tien	CBE PhD Student – coadvised with Wilfred Chen

Past Trainees

2023 – 2024t	Vidhya (Wren) Mallikarjunan	CBE MS Student
2023 – 2024	Kunwoo Khim, MS	**Current**: Georgia Tech PhD Student
2022 – 2024	Manish Pareek, PhD	Postdoctoral Research Associate | **current**: Assistant Professor, Dr. B. Lal Institute of Biotechnology
2021 – 2024	Radwa Hanafy, PhD	CBE Postdoctoral Research Associate | **current**: USDA
2022 – 2023	Derek Wu, MS	**Current:** Merck
2018 – 2023	Mrugesh Parasa, PhD	**PhD defense**: 5/23 | **current**: University of Arizona Molecular & Cell Biology postdoc
2016 – 2022	Casey Hooker, PhD	Purdue University College of Engineering Outstanding Graduate Research Award (2022) | Purdue University ABE Department Outstanding Graduate Research Award (2022) | MS in Biological Engineering, 2018 | NSF Graduate Research Fellow 2018-2021 | **PhD defense**: 11/22 | **current**: Fungal Molecular Scientist, Aqua Cultured Foods
2016 – 2021	Kok Zhi Lee, PhD	Purdue ABE Outstanding Service Award | Defense Threat Reduction Agency Travel Award, Central US Synthetic Biology Workshop 2019 | Carol D. Litchfield Best Student Poster Presentation Award at SIMB 2018 | **PhD defense**: 4/21 | **current**: Washington University at St. Louis Energy, Environmental & Chemical Engineering postdoc
2016 – 2021	Ethan Hillman, PhD	Purdue University College of Engineering Outstanding Graduate Research Award (2020) | PULSe 5 Minute Thesis presentation competition winner (2020) | NSF Graduate Research Fellowship Program (Honorable mention, 2017) | **PhD defense**: 2/21 | **current:** Visiting Assistant Professor, Kenyon College

2017 – 2019	Jake Englaender, PhD	Postdoctoral Research Associate | **current:** Lead Microbial Fermentation Scientist, AgroSpheres
2018 - 2019	Michael Mechikoff, MS	**MS defense**: 12/19 | **current**: US Air Force
2016 - 2018	Logan Readnour, MS	Andrews Fellowship | **MS defense**: 11/18 | **current**: Sequencing Specialist, Lanzatech

Rotation Students

2023	Topher Pirner	UD CBI PhD Student (CBE)/Visiting Sabbatical
2022	Austin Desmarais	UD Microbiology PhD Student
2022	Austin Morgan	UD Microbiology PhD Student
2022	Brett Graver	UD BISC PhD Student
2022	Ross Klauer	UD CBI PhD Student (CBE)
2021	Shelby Anderson	UD CBI PhD Student (CBE)
2020 – 2021	Javier Muñoz	Purdue PULSe PhD Student
2020	Lauren Wilbanks	Purdue PULSe PhD Student
2018	Logan Kurgan	Purdue PULSe PhD Student
2017	Jonathan Overton	Purdue ABE PhD Student
2017	Conrrad Nicholls	Purdue PULSe PhD Student

Thesis Committees

Current PhD Committees @UD

Sabyasachi (Sunny) Sen (CBE, Kunjapur)
Madan Gopal (CBE, Chen/Kunjapur)
David Le (CBE, Lee)
Anthony Stohr (CBE, Chen/Blenner)
D'Jana Wyllis (CBE, Kunjapur)
Casey Derieux (MGP, Hanson)
Derron Ma (CBE, Chen/Blenner)
Michalea Jones (CBE, Kunjapur)
Aerin Rost-Nasshan (MGP/Hanson)
Pragati Muthukumat (CBE/Chen)
Monona Khare (CBE/Kunjapur)

Current PhD Committees @Other Institutions

Cody Kamoku (ChE @ ASU, David Nielsen)

MS Committees Completed

Aginiprakash Dhanabal, MS (ABE/Garner) – 12/19
Michelle Ingle, MS (ABE/David Umulis) – 11/19
Paul Lengemann, MS (ABE/Meng Deng) – 07/18
Jeremiah Vue, MS (ChE/John Morgan) – 07/17

PhD Committees Completed

Dr. Chaoying Ding (CBE, Marianthi Ierapetritou) – 5/24
Dr. Vijaydev Ganesan (CBE, Mark Blenner) – 11/23
Dr. Ruben Lopez (ENE/Tamara Moore) – 12/22
Dr. Craig Sweet (CHEM/David Thompson) – 12/20
Dr. Emma Brace (ABE/Abby Engelberth) – 7/20
Dr. Sarah Daly (ABE/Jiqin Ni) – 7/20
Dr. Ikenna Okekeogbu (ABE/Kari Clase) – 7/20
Dr. Lee Stunkard (BCHEM/Jeremy Lohman) – 12/19
Dr. Leyla Nesrin (ABE/Jenna Rickus) – 07/17
Dr. Md. Shariar Karim (ABE/David Umulis) –12/16

Research Interns and Visitors (**22% coauthors**)

Current

	Year	Undergrad	Program/ Honors/Achievements	Current Affiliation
1	2025 -	Conrad (Bo) Graveur		CBE '26, UD
2	2024 -	Ethan Passino		CBE '26, UD
3	2024 -	Zoe Pecson	UDRAW	CBE '27, UD
4	2024 -	Nadia Harricharan	INBRE Summer Scholar '24 |AMBB Practicum	AMB & Biotech'25, UD
5	2024 -	Christina Rodriguez	INBRE Summer Scholar '24 | AMBB Practicum	AMB & Biotech'25, UD
6	2023 –	Austin Futty	UDRAW/NSF REU'24	AMB & Biotech '27, UD
7	2023 –	Ashley Kalan	INBRE Summer Scholar '23, DE-INBRE Academic Year Fellow '23-'24	CBE '25, UD

8	2022 –	Evan Gillen	INBRE Summer Scholar ’23 (declined)	CBE ’26, UD
9	2022 –	Jesal Patel	INBRE Summer Scholar ’22, UD Summer Scholar ’23, NSF REU ‘24	CBE ’25, UD

Past

	Year	Undergrad	Program/ Honors/Achievements	Current Affiliation
10	Spring 24	Valeria Villadiego Valencia	UDRAW	Biological Sciences ’27, UD
11	2023 – 2024	Ashwin Mhadeshwar	HS Intern	Garnet Valley High School, PA ‘24
12	Summer 24	Kendall Massey	NSF REU ‘24	BE ’26, Purdue
13	2023 – 2024	Subiksha Srinivasan Vidya	HS Intern; Finalist in Charter School of Wilmington Science Fair; 2nd place New Castle County Science Fair	Charter School of Wilmington ‘26
14	Fall 23	Oscar Hageman	HS Intern	Cape Henlopen High School ‘24
15	Summer 23	Arya Gupta	HS Intern	Charter School of Wilmington ‘25
16	2023 – 2024	Jadira Fuentes Bautista		~~CBE~~ AMB & Biotech’26, UD
17	Summer 23	Robyn Logue	INBRE Summer Scholar ‘23	Eng Phy ’26, DSU
18	2022 – 2023	Toni Akin-Adenekan	Senior Thesis	Assoc. Scientist, AstraZeneca
19	2021 – 2023	Megane Noubissi Tabouguia	Senior Thesis	PharmD Student, UMBC
20	2021 - 2023	Julia Donlevie	Honors Thesis	PhD Student, Cornell
21	Summer 22	Dylan Carman	REU Fellow; NSF Graduate Research Fellow	PhD Student, JHU
22	Summer 22	Ashlesha Mohapatra	CHOg2p REU Fellow	CBE ’24, UD
23	Summer 22	Alvaro Tinoco Guzman	HS Intern (K12 Engineering)	
24	Summer 22	Krish Modi	HS Intern (NSF RAHSS Fellow)	Class of ’27, Penn
25	Summer 22	Aidan Kindopp	REU Fellow; Goldwater Scholar	PhD Student, MIT
26	2021 - 2022	Altaf Bacchus		CBE ’25, UD
27	2021	Brigid Monahan		CBE ’24, UD
28	Summer 21	Zymir Robinson	CHOg2p REU Fellow	Biology ‘23, DSU
29	2020 – 2021	Rebecca Slaughter		Process Engineer, Catalent
30	2019 – 2021	Benjamin Rubino	Honors Thesis	PhD Student, UT Knoxville
31	2019 – 2021	Benjamin Howard		Biological Engineering ’21, Purdue
32	2019 – 2021	Elizabeth Frazier	REU Fellow; *Microorganisms*, 9:1986 (2021); NDSEG Fellow	PhD Student, Purdue
33	2019 – 2021	Tyler Rankin	*ACS Syn Biol*, 11:53-60 (2022)	PhD Student, Iowa
34	2020	Benjamin Burns		Biological Engineering ’22, Purdue
35	2017 – 2020	Kevin Fitzgerald	OUR Scholar 2019; NSF Graduate Research Fellow; *ACS Syn Biol*, 11:53-60 (2022); *NAR,* 49: 9923-9937 (2021).	PhD student, Northwestern
36	2018 – 2020	Paula Pandolfi	Honors Thesis; *ACS Syn Biol*, 11:53-60 (2022); *NAR,* 49: 9923-9937 (2021).	PhD student, UCLA

37	2019 – 2020	Zach Hartley	Honors Thesis	PhD student, UCR
38	2019	Abigail Venskus	SROP Fellow/REU	Lab Tech, SUNY Upstate
39	2019	Kathryn Myers		PhD Student, Stanford
40	2019	Ja'Sean Holmes	NSF REU Fellow	PhD Student, Michigan
41	2018 – 2019	Rachel Susler	*Appl. Nano Mater*, 3: 12080 – 12086 (2020).	Purdue ChE '19
42	2018 – 2019	Corren Scott	*Appl. Nano Mater*, 3: 12080 – 12086 (2020)	Process Engineer, Carlisle Construction Materials
43	2018 – 2019	Trang Dieu		Repligen
44	2018	Ethan Gaskin		MS Student, CMU
45	2018	Frances Opferman		MA Student, Queens
46	2017 – 2019	Archana Kikla	Honors Thesis; *NAR,* 49: 9923-9937 (2021).	PhD Student, ASU
47	2017 – 2019	Juya Jeon	SURF Fellow	PhD Student, WUSTL
48	2017 – 2019	Makayla Schacht	*Biotechnol. Biofuels,* 11:293 (2018)	Assoc. Lab Technician, Covance
49	2017 – 2018	Abigail Hunnicutt	*Biotechnol. Biofuels*, 11:293 (2018)	Field Services Tech, SCIEX
50	2017 – 2018	Evan Shank	*Microorganisms*, 9:1986 (2021)	Business Development, NEXTFLY Web Design
51	2016 – 2019	Adrian Ortiz-Velez	MASI Fellow, *Biotechnol. Biofuels*, 11:293 (2018); *Microorganisms*, 9:1986 (2021).	PhD student, San Diego State/UC Riverside
52	2016 – 2019	Rohit Chatterjee	MASI/SURF Fellow, OUR Scholar	MD student, IU
53	2016 – 2018	Alexander Murfee		
54	2016 – 2018	Arren Liu	MASI Fellow; *NAR,* 49: 9923-9937 (2021).	postdoc, Johns Hopkins
55	2016 – 2018	Suraj Mohan		MS, Research associate, Lanzatech
56	2016 – 2018	Yu Hong (James) Wang	SURF Scholar/Martin Ag Research Scholar, Coauthor on patent	PhD student, CMU
57	2017	Bowman Clark		
58	2017	Eung Baek Kim		
59	2016	Emma Foster		PhD Student, Purdue
60	2016	Sharifah Binti Syed Omar		Human Factors Engineer, Farm Design, Inc
61	2014 – 2015	Charlotte Abrahamson	Amgen Scholar	PhD
62	2013 – 2014	Erich Brodbeck	SSB URAP Fellow	Process Engineer, Amyris
63	2013	Megan Cotich	Research Experience for Teachers Fellow, integrated research in Gr. 7 Life Sciences curriculum	Life Sciences, La Colina Junior High School
64	2013	Elisa Ovadia	*ME Comm*. 3:68-75, (2016)	PhD, process engineer, Kite Pharma
65	2012 – 2013	Brian Owens		Project Manager, Kinder Morgan
66	2011	Tarielle (Sanders) Jones	Amgen Scholar; *ME* 14(6): 661-671, (2012); *ACS SynBio*, 2(3):126-135, (2013)	PhD, Senior Engineer, Raytheon
67	2011	Brian Ma	SURF Fellow, *ACS SynBio*, 2(3):126-135, (2013)	MS, software engineer, Sahara Cloude
68	2010	Zach Waxman		MD, software engineer, Tempus Labs

69	2010	U'Kevia Bell	MSRP Fellow, Biophysical Society Poster award at ABCAM 2012	Production Engineer, Dow
70	2009	Matt Luchette		MD, pediatrician
71	2008	Aziza Glass	MSRP Fellow	DVM, private veterinarian

UNIVERSITY & DEPARTMENTAL SEVICE @ UD

2024 – Lead for Education, Training, Public Engagement, and Workforce Development Subcommittee, Carbon Utilization Redesign for Biomanufacturing-Empowered Decarbonization (CURB) Engineering Research Center (ERC)
2024 – UD COE Faculty Senator
2024 IEDH Pilot Grant Reviewer
2023 UDRF-SI Reviewer
2023 Launched a bootcamp for high school students in Synthetic Biology (BooST)
2023 Chemical & Biomolecular Engineering Faculty Search Committee
2022 – 2023 VP Research, Scholarship & Innovation Search Advisory Committee
2022 – Chemical & Biomolecular Engineering Undergraduate Curriculum Committee
2022 – Faculty Advisor, National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) Student Chapter
2022 – NIIMBL Workforce Development Training Center Director
2022 – Computational Biology, Bioinformatics, and Biomedical Data Science (i3-CBB) Program Committee, CBE Representative
2021 – Colburn Community Committee
2021 – CBE Undergraduate Faculty Advisor, Class of '25
2021 – UD Education & Workforce Development Committee Representative, BioMADE Manufacturing Innovation Institute
2021 – 2022 CBE Departmental Colloquia Organizer
2021 Faculty Advisor, AIChE Student Chapter
2021 Delaware Bioscience Center for Advanced Technologies (CAT) Technical Review Committee

Active Participant in K-12 Outreach: Developed and led hands-on activities demonstrating principles of chemical separations and polymerization to predominantly African American K-3 students at St. Peters Cathedral School as part of their Summer Camp (2021). Developed and launched the first Bootcamp for Synthetic Biology Training (BooST @ UD) to provide an intensive hands-on 3-week introduction to synthtetic biology methods and theory for high school students at Charter Schoolmof Wilmington. Providing authentic summer research experiences for DE high school students.

Providing educational opportunities beyond the classroom: Strong advocate for undergraduate research. Currently supervising 2 undergraduate/honors theses. Provide technical and advisory support to the student-led iGEM team, which designs biological systems that address grand challenges in medicine, manufacturing, food, and ethics with biology. (Co-advisor with Aditya Kunjapur)

EXTERNAL SERVICE & OTHER PROFESSIONAL ACTIVITIES

Policy: Congressional Testimony: US House of Representatives (2019)

Technology Roadmaps: EBRC Microbiome Technology Roadmap (2020), EBRC Materials Technology Roadmap (2021); EBRC Mitigating Climate Change Technology Roadmap (2022)

Advisory Boards: DOE Environmental Molecular Sciences Laboratory (EMSL) User Executive Committee (2021 – 2024); DOE Pacific Northwest National Lab (PNNL) Predictive Phenomics Initiative Advisory Committee (2023 – 2025); SIMB Presidential Planning Committee (2024 – 2025); DOE Joint Genome Institute (JGI) User Executive Committee (2025-2026)

Editorial Boards: Editorial Board Member: *Engineering in Life Sciences* (2022 – 2024); *Experimental Biology & Medicine* – Synthetic Biology Section (2022 – 2025); *Synthetic & Systems Biotechnology* (2024 – 2026)

Early Career Advisory Board: *ACS Synthetic Biology* (2024 – 2025)

Associate Editor: *Frontiers in Fungal Biology* (Fungal Biotechnology Section) (2020 –); *Frontiers in Synthetic Biology* – Metabolic Engineering Section (2023 –)

Review Editor: *Frontiers in Bioengineering and Biotechnology* – Synthetic Biology (2019 –); *Frontiers in Chemical Engineering* – Biochemical Engineering (2021 -); *Frontiers in Microbiology* – Systems Microbiology (2022 -);

Professional Society: Programming Committee for Annual Meetings: *Symposium on Biomaterials, Fuels and Chemicals (SBFC), Society for Industrial Microbiology & Biotechnology* Co-Chair (2023), Chair (2024), Past Chair (2025); *AIChE Division 15C*: Vice Chair Elect (2023), Vice Chair (2024), Chair (2025)

Society Leadership: SIMB Nomination Committee Member (2023), SIMB Planning Committee Member (2023), Webinar Planning Committee Member (2023)

Reviewer: *NIH PCMB Study Section* (2024 – 2028)

Site Visit Panels: ARL Biological and Biotechnology Sciences (2024)

Reverse Site Visit: NSF MRSEC (2023); DOE BER SFA (2024)

Journals: *ACS Synthetic Biology, AIChE Journal, Applied Microbiology & Biotechnology, Biochemical Engineering Journal, Bioengineering & Translational Medicine, Biotechnology for Biofuels, Biotechnology & Bioengineering, Biotechnology Journal, Biotechnology Advances, ISME Journal, Journal of Biological Engineering, Materials Advances, Metabolic Engineering, Metabolic Engineering Communications, Molecular Biotechnology, Molecular Microbiology, Microbiology and Molecular Biology Reviews, Nature Chemical Biology, Nature Communications, Nucleic Acids Research, PLoS One, Synthetic Biology* (2009-present)

Panels: DOE – JGI Community Science Program (2016 – 2022, 2024), EMSL User Science Programs (2020 – 2024), NIH PCMB (2021, 2024), NSF-CBET (2016 – 2018, 2020, 2022), USDA NIFA (2019, 2022), NSF (2019, 2020), NSF-MCB (2020, 2022), NSF MFB (2022), NSF IOS (2024).

ad hoc Grant Review: Ontario Genomics Institute LSRP: Natural Resources and the Environment: Sector Challenges - Genomic Solutions (2015); Notre Dame Eck Institute for Global Health (2016); VENI, Technologiestichting STW (Germany; 2016); Genome British Columbia – Sector Innovation Program (2017), Deutsche Forschungsgemeinschaft (Germany; 2018, 2024), CIISA – Centre for Interdisciplinary Research in Animal Health, Faculty of Veterinary Medicine, University of Lisbon, Portugal (2020), NSF-CBET (2020), Schmidt Ventures (2021), The Royal Society (2023), L'Agence National de la Recherche (France - 2023).

Outreach: Delaware Youth Environmental Summit (YES!) Seminar Speaker (2023); K12 Engineering (2021); MASI (2016-2019); PASA Summer Institute (2016-2019); UCSB Research Experience for Teachers (RET) Program Mentor (2013); Organizer of Synthetic Biology Symposium (PVAMU, 2008)

Conference Programming

American Chemical Society – Biochemical Technology Division Annual National Meeting

Session Chair

Synthetic Biology and -OMICS Approaches to Engineer Microbial Communities, 2016
Microbial and Non-Model Hosts: Strain Engineering and Process Development, 2017
Microbial Metabolic Engineering, 2018, 2019
Systems Biology & Omics: Tools and Applications, 2021
AAV Upstream Process Development, 2023

Poster Session Area Coordinator, 2017, 2019
Upstream Area Coordinator (Symposium Organizer), 2020
Big Data Science Approaches, Knowledge Management, and Artificial Intelligence Area Coordinator (Symposium Organizer), 2022

American Institute of Chemical Engineers Annual Meeting

2025 Division 15C Program Chair
2024 Division 15C Program Vice Chair
2023 Division 15C Program Vice Chair Elect
Session Chair

Advances in Metabolic Engineering of Photosynthetic/Non-Model Organisms, 2017
Advances in Metabolic Engineering, 2018
Synthetic Biology Applications, Metabolic Engineering 2019
Metabolic Engineering Platform Development – Non-conventional Eukaryotes, 2020
Metabolic Platform Development- Non-Conventional Species and Systems, 2022
Systems Biology: Microbes and Microbial Communities, 2024

Metabolic Engineering Theme Leader, 2020, 2022

Afrobiotech Conference [Society for Biological Engineering (AIChE)]
Session Chair:
Metabolic Engineering and Synthetic Biology, 2019
Metabolic Engineering, Synthetic Biology, and Chemical Biology, 2021
Organizing Committee, 2020

Central US Synthetic Biology Conference
Organizing Committee, 2020

Biochemical Engineering
Session Chair: Machine learning-guided design and automation, 2022

Engineering Biology Research Consortium Annual Retreat
Session Chair: Addressing National and Global Needs, 2022

International Conference on Biomolecular Engineering
2024 Meeting Organizer
Session Chair: Metabolic Engineering for Fuels, Chemicals and Pharmaceuticals, 2017

International Conference on Microbiome Engineering
Organizing Committee: 2024 ICME

International Metabolic Engineering Society
Organizing Committee: Metabolic Engineering 15, 2023
Young Member of the Board of Directors (2024-2026)

Society for Industrial Microbiology & Biotechnology Annual Meeting
Session Chair
Photosynthetic and Non-Conventional Organisms in Metabolic Engineering, 2017
Utilization of Lignin and Alternate Feedstocks, 2018
Program Committee: Environment, 2022-2023

Symposium on Biomaterials, Fuels and Chemicals (SBFC), Society for Industrial Microbiology & Biotechnology
Session Chair: Enzyme discovery and engineering for biomass deconstruction and biofuels and chemical production, 2021
Topic Area Chair: TOPIC AREA 3- Biomass engineering and deconstruction, 2022
***Meeting Planning Committee* (2023 – 2025, Chair - 2024)**

Synthetic Biology: Engineering, Evolution & Design (SEED) Conference
Organizing Committee, 2022

Professional Memberships

American Chemical Society (Biotechnology Division) (ACS-BIOT)
American Institute of Chemical Engineers (AIChE) Division 15
International Metabolic Engineering Society (IMES)
National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE)
Society of Biological Engineers (SBE)
Society for Industrial Microbiology & Biotechnology (SIMB)