KIANA ARAN, PHD

EDUCATION

B.S. Electrical Engineering, City University of New York, 2007
Ph.D. Biomedical and Bioengineering, Rutgers University, 2012

ACADEMIC EXPERIENCE

Institution	Rank &Title	Period
Department of Bioengineering, Jacobs School of Engineering, University of California San Diego (UCSD),	Associate Professor	2023-presesnt
Department of Medicine, Division of Geriatrics, Gerontology & Palliative Care University of California San Diego (UCSD),	Associate Professor	2023-presesnt
Keck Graduate Institute Claremont Colleges, School of Applied Life Sciences	Associate Professor	2021-2023
Keck Graduate Institute Claremont Colleges, School of Applied Life Sciences	Assistant Professor	2017-2021
Buck Institute for Research on Aging	Postdoctoral scholar	2015-2017
University of California Berkeley, Bioengineering	Postdoctoral scholar	2012-2017

NON-ACADEMIC SERVICE/EXPERIENCE

Organization	Title & Duties	Period
Lindau Nobel Laureate Meetings	Sciathon Judge	2024-present
Center for Technologies for Healthy Aging, Institute of Engineering in Medicine, UCSD	Founder and co-director	2024-present
Scientific Advisory Board	Neuroverse Inc	2024-present
Innovation Advisor	Paragraf UK	2023-present
Springer Nature Group	Judge and Mentor for University Spin off and Women in Science awards	2021-presesnt
Aran Nebula (Non-profit)	Founder (STEM mentorships program)	2021-prersent
CRISPR QC	Cofounder and board member	2021-presesnt
Cardea Bio (M&A 2023)	Cofounder and CSO	2019-2023
Nanosens Innovation (M&A 2021)	Cofounder and CSO	2019-2019
Bill & Melinda Gates Foundation	Consultant	2017-2021

HONORS AND AWARDS

1. Sony Women in Technology Award, Overall, Winner (Under Embargo till Feb 2025)
2. AIM (Accelerating Innovation to Market) Winner, UCSD (2024)
3. National Academy of Inventors, Senior Member (2024)

4. Distinguished Engineer of the Year, San Diego Society of Engineers (2024)
5. New Voices in Sciences, Engineering and Medicine (2023)
6. Distinguished Engineer, Society of Women Engineers (2023)
7. Distinguished Speaker, Material Research Society (2023)
8. Distinguished Engineer Medal of Excellence Award, Rutgers University (2022)
9. Riggs School Faculty Research Award (2022)
10. Select member of World Minds (2022)
11. The Scientist's 2021 Top 10 Innovation (2021)
12. Nature Research Awards for Inspiring Women in Science – Scientific Achievement Winner (2021)
13. NSF Faculty Early Career Development (CAREER) Award Winner (2021)
14. 22nd Annual Athena Pinnacle Award Winner (2020)
15. Clinical OMICs 10 under 40 Award (2020)
16. Most read Nature Biomedical Engineering Paper Published in 2019 (2020)
17. Nature's "Behind the Paper Top 10" List – 2nd Place (2020)
18. The Claremont Colleges Faculty Diversity in Mentoring Award Nomination (2020)
19. The Claremont Colleges Faculty Diversity in Teaching Award Nomination (2020)
20. San Diego Venture Group: Coolest Companies of 2019 Award (2020)
21. CONNECT by San Diego Venture Group: Most Innovative Product Award in the Life Sciences and Healthtech Category (2019)
22. National Institute of Health Fellow: Postdoctoral Training Grant (2016- 2019)
23. UC Berkeley postdoc nominee for Rosenman Innovation Award (2015)
24. UC Berkeley postdoc nominee for the Regeneron Prize for Creative Innovation Award (2015)
25. Biomedical Engineering Graduate Student Best Manuscript Award (2010) The Sixth International Conference on Pediatric Mechanical Circulatory Support Systems and Pediatric Cardiopulmonary Perfusion, Harvard Medical School, Boston, Massachusetts.
26. International Conference Presentation Travel Award (2009) The Thirteen International Conferences on Miniaturized Systems for Chemistry and Life Sciences, Jeju, South Korea
27. Research Fellowship, Johnson & Johnson (2007-2008)
28. DMJM Harris Scholarship (2006)
29. Undergraduate Research Fellowship, National Oceanic and Atmospheric Administration (2003-2007)

EDITORIAL BOARDS

1. The **Stern Stewart Institute** Women Circle *(2024-present)*
2. Judge, **Lindau Nobel Laureate Meetings, Sciathon** (*2023-present*)
3. Judge, **Springer Nature University Spinoff Awards** (*2023-present*)
4. Judge, **Springer Nature Inspiring Women in Science** (*2022-present*)
5. Editorial board, **Rejuvenation journal** (*2022-present*)
6. Editor, **GEN Biotechnology** (*2021 to present*)
7. Guest Editor, **Biosensors and Bioelectronics**, Special Issue: CRISPR-powered Biosensing (*2021*)
8. Guest Editor, **Frontiers in Bioengineering and Biotechnology** for CRISPR-based biosensors *(2021)*
9. Panel Reviewer, **National Institutes of Health** (2018 to present)
10. Panel Reviewer, **National Science Foundation** (2018 to present)
11. Reviewer, **Nature Biomedical Engineering, Analytical Chemistry, Biosensors and Bioelectronics**

Commercialization and Spinoff

1. **Technology**: BioJet™ Systemic Oral Delivery Platform
    - Description: Needle-free, oral delivery of large molecules designed to replace injections for better management of chronic diseases.
    - Patent: University of California US10729895, USA, Granted.
    - Licensee: Biora Therapeutics, San Diego, USA.
2. **Technology**: Graphene-based Field Effect Biosensors
    - Spinoff: Cardea Bio (M&A April 2023)
3. **Technology**: CRISPR Analyzer
    - Spinoff: CRISPR QC
    - Patent: University of California and Keck Graduate Institute US20190112643, USA, Allowed.

Commentaries

1. "CRISPR Electronic Biosensor." *Synthego Blog*, 2019, (Link)
2. "CRISPR-Chip Advance Streamlines Genetic Testing for Medical Diagnostics and Research." Berkeley Engineering, 2021, (Link)
3. "CRISPR QC Developing Electronic Platform to Measure Gene Editing Performance." *GenomeWeb*, 2022, (Link)
4. SNP-Chip: New CRISPR-Chip Iteration Enables Rapid Detection of Single Nucleotide Mutations." Synthego Blog, 2021, (Link)

SELECT PEER-REVIEWED PUBLICATIONS

2024

1. D. Ban , R. Hajian, M. Chan, S. Abdolrahimi, F. Barron, S. Datta & **K. Aran**. *Real-Time Monitoring in Biomanufacturing with Graphene Field-Effect Transistor Sensors: Detection of pH, Glucose, and Antibodies.* ***Gen Biotechnology. https://doi.org/10.1089/genbio.2024.0043 (2024)***
2. Aran, K., Goldsmith, B.R. *CRISPR quality control on a chip*. ***Nat Rev Bioeng*** 2, 194–195 (2024). https://doi.org/10.1038/s44222-024-00159-4
3. Aran, K., Goldsmith, B., Moarefian, M. (2024). *Applications of Graphene Field Effect Biosensors for Biological Sensing. In: Advances in Biochemical Engineering/Biotechnology*. ***Springer***, Berlin, Heidelberg. https://doi.org/10.1007/10_2024_252 (2024)

2023

4. R. Hajian, M. Coppock, A. Kane, D. Ban, A. Winton, E. Celaya, B. Goldsmith, & **K. Aran**. *Multiplexed graphene-based transistors for Direct and differential Detection and Quantification of SARs-CoV2 based on Protein Catalyzed Capture Bioreceptor", **Advanced Materials Technologies, Cover** (2023)* https://doi.org/10.1002/admt.202201945
5. Ban, D.K., Hajian, R., Winton, A.J., Eom, R., Gupta, A., Kane, A.A., Liu, S., Sampath, R., Farrell, M.L., Coppock, M.B., Goldsmith, B. and Aran, K. (2023), A Single Multiomics Transistor for Electronic Detection of SARS-Cov2 Variants Antigen and Viral RNA Without Amplification. Adv. Mater. Technol., 8: 2201945. https://doi.org/10.1002/admt.202201945
6. Chu, A.Romero, J.Taulbee & **K.Aran.** *Development of Single Molecule Techniques for Sensing and Manipulation of CRISPR and Polymerase Enzymes"*, J**.** ***Small*** *(2023)*

2022

7. Parkinson, J., DeCastro, J. H., Goldsmith, B., **Aran, K**. "Machine learning for disease classification: a perspective. *Artificial intelligence in healthcare and medicine (pp. 1-21)".* ***CRC Press*** *(2022)*

8. M. Mehdipour, P. Amiri, C. Liu, J. DeCastro, C. Kato, C. Skinner, M.J. Conboy, **K. Aran**, I.M. Conboy. *Small animal blood exchange: an emerging approach for systemic aging research. **Nature Protocols** (2022*)
9. G. Kabay, J. DeCastro, A. Altay, K. Smith, H.W. Lu, A. McDonnell Capossela, M. Moarefian, **K. Aran***, and C. Dincer*. Emerging Biosensing Technologies for the Diagnostics of Viral Infectious Diseases. ***Advanced Materials (Wiley) (****2022*)
10. H-W. Lu, A. Kane, J. Parkinson, Y. Gao, R. Hajian, M. Heltzen, B. Goldsmith, **K. Aran**. The Promise of Graphene-based Transistors for Democratizing Multiomics Studies. ***Biosensors and Bioelectronics****. (2022*).

2021

11. Amiri, P., DeCastro, J., Littig, J., Lu, H.-W., Liu, C., Conboy, I., **Aran, K.**, Erythrocytes, a New Contributor to Age-Associated Loss of Blood–Brain Barrier Integrity. ***Adv. Sci. (Inside Back Cover) (***2021)
12. S. Balderston, G. Clouse, J. Ripoll, G. Pratt, G. Gasiunas, J. Bock, E. Bennet, **K. Aran.** Diversification of the CRISPR Toolbox: Applications of CRISPR-Cas Systems Beyond Genome Editing. ***The CRISPR Journal.*** *(2021)*
13. Hajian, R., DeCastro, J., Parkinson, J., Kane, A., Camelo, A. F. R., Chou, P. P., Yang, J., Wong, N., Hernandez, E. D. O., Goldsmith, B., Conboy, I., **Aran, K**., Rapid and Electronic Identification and Quantification of Age-Specific Circulating Exosomes via Biologically Activated Graphene Transistors. ***Adv. Biology (Front Cover),*** *(2021)*
14. S. Balderston, J. Taulbee, E. Celaya, K. Fung, K. Smith, R. Hajian, G. Gasiunas, S. Kutanovas, R. Peytavi, F. Barron, B.R. Goldsmith, P. G. Collins, I. M. Conboy, V. Siksnys, **K. Aran**, *Discrimination of single-point mutations in unamplified genomic DNA via Cas9 immobilized on a graphene field-effect transistor.* ***Nat Biomed Eng* 5, 713–725**. https://doi.org/10.1038/s41551-021-00706 **(2021)**
15. J. DeCastro, J. Littig, P.P. Chou, J. Mack-Onyeike, A. Srinivasan, M.J. Conboy, I. M. Conboy, & **K. Aran.** The Microfluidic Toolbox for Analyzing Exosome Biomarkers of Aging. *Molecules* **2021**, *26*(3), 535; https://doi.org/10.3390/molecules26030535

2019

16. D. K. Rai, M. Gurusaran, V. Urban, **K. Aran**, L. Ma, P. Li, S. Qian, T.N. Narayanan, P.M. Ajayan, D. Liepmann, K. Sekar, M.E. Álvarez-Cao, J.J. Escuder-Rodríguez, M.E Cerdán, M.I. González-Siso, S. Viswanathan, R. Paulmurugan, V. Renugopalakrishnan. *Structural determination of Enzyme-Graphene Nanocomposite Sensor Material*. ***Sci Rep*** *(2019)*
17. R. Haijan, S. Balderston, T. Tran, T. Deboer, J. Etienne, M. Sandhu, N. Wauford, J. Nokes, M. Athaiya, J. Paredes, R. Peytavi, B. Goldsmith, N. Murthy, I.M. Conboy, **K. Aran**. *Detection of unamplified target genes via CRISPR/Cas9 immobilized on a graphene field-effect transistor*, **Nature Biomedical Engineering (Front Cover and featured in 50 news *articles*)** *(2019).*

2018

18. R. Hajian, K. Fung, P. Chou, S. Wang, S. Balderston, **K. Aran**, *Graphene Oxide: Properties and Functionalization Methods*. ***Material Matters****, (2018)*
19. C.M Sadlowski, S. Balderston, M. Sandhu, R.Hajian, C.Liu, T.Tran, N.Murthy, I.MConboy, **K.Aran**, *Graphene-based biosensor for on-chip detection of Bio-orthogonally Labeled Proteins to Identify the Circulating Biomarkers of Aging during Heterochronic Parabiosis*. ***Lab on a Chip (Featured back cover) (****2018)*

2017

20. M.Chooljian, J.Paredes, K.Lee, M.Rafi, N.Murthy, I.Conboy, D.Liepmann, *An oral microjet vaccination system elicits antibody production in rabbits,* ***Science Translation Medicine****,* **(*MucoJet Technology, Featured inside piece)*** *(2017)*

2015

21. K. Lee, M. Rafi, X. Wang, **K. Aran**, X. Feng, R. Tang, N. Murthy, In vivo delivery of transcription factors with multifunctional oligonucleotides, ***Nature Material***, doi:10.1038/nmat4269
22. **K. Aran**, J. Paredes, M. Rafi, J. Yau, AP. Acharya, M. Zibinskey, D. Liepmann, N. Murthy, Stimuli Responsive Electrodes Detect Oxidative Stress and Liver Injury. ***Advanced Material (Featured Front Piece)***, *(2015)*
23. S.Viswanathan, TN.Narayanan, **K. Aran**, K. Fink, J. Paredes, PM. Ajayan, D. Liepmann, V. Renugopalakrishanan, *Graphene–protein field effect biosensors: glucose sensing*, ***Materials Today****, (2015)*

2014

24. AP. Acharya, P. Sen, **K. Aran**, AB. Gardner, M. Rafi, D. Dean, N. Murthy, *A Turn-Off Fluorescent Substrate for Horseradish Peroxidase Improves the Sensitivity of ELISAs,* ***Journal of Polymer Science*** *(2014)*
25. D. Liepmann, **K. Aran**, PM. Ajayan, S. Viswanathan, P. Li, V. Renugopalakrishnan, *Graphene Protein Field Effect Biomedical Sensor for Glucose Measurements,* ***MRS Proceedings*** *(2014)*
26. **K. Aran**, J. Paredes, J. Yau. M. Rafi. *An Enzyme-free Digital Biosensor for Detection of Reactive Oxygen species*. ***MicroTAS*** *(2014)*

2013

27. L.A. Sasso, **K. Aran**, F. Qiu, J. D. Zahn and A. Ündar, *Continuous Monitoring of Systemic Inflammation during Cardiopulmonary Bypass Procedure with a Microfluidic Immunoassay Device*. ***Artificial Organs*** (2013)

2011

28. **K. Aran**, A. Fok, L.A. Sasso, N. Kamdar, Y. Guan, Q. Sun, A. Undar, and J.D. Zahn, *Microfiltration Platform for Continuous Blood Plasma Protein Extraction from Whole Blood during Cardiac Surgery.* ***Lab on a Chip*** *(2011)*
29. **K. Aran**, M, Morales, L.A. Sasso, J, Lo, J, Zheng, I, Johnson and J. D. Zahn, *Microfiltration Device for Continuous, Label-free Bacteria Separation from Whole Blood for Sepsis.* ***MicroTAS*** *(2011*)

2010

30. **K. Aran**, A. Fok, Y. Guan, Q. Sun, J. D. Zahn and A. Ündar, *Differential Immune Activation During Simulated Cardiopulmonary Bypass Procedure using Freshly Drawn and Week-Old Blood.* ***Artificial Organs*** *(2010)*
31. **K. Aran**, L.A. Sasso, N. Kamdar, and J.D. Zahn. *Irreversible, direct bonding of nanoporous polymer membranes to PDMS or glass microdevices.* ***Lab on a Chip*** *(2010)*

2009

32. **K. Aran,** A. Fok, Y. Guan, Q. Sun, J. D. Zahn and A. Ündar, *A two Compartment Microdialysis Microdevice for Continuous Protein Extraction from Whole blood*. **MicroTAS** *(2009)*

PATENTS

1. Active agent delivery devices and methods of using the same, US10729895, USA, Granted
2. Immobilized RNPs for sequence-specific nucleic acid capture and digital detection, US20190112643, USA, Allowed
3. Enhanced selection of efficient targeted genome manipulating agents, WO2020163496, PCT, INP
4. Electronic detection of a target based on enzymatic cleavage of a reporter moiety, WO2020264204, PCT, INP
5. Enhanced selection of efficient targeted genome manipulating agents, CA3129055, Canada, Pending
6. Enhanced selection of efficient targeted genome manipulating agents, KR20210126640, South Korea, Pending
7. Enhanced selection of effective targeted genomic manipulation agents, CN113661392, China, Pending
8. Enhanced selection of efficient targeted genome manipulating agents, EP3921638, Europe, Pending
9. Electronic detection of a target based on enzymatic cleavage of a reporter moiety, CA3144955, Canada, Pending
10. Transportation and detection of analytes, WO2021026458, PCT, INP
11. Transportation and detection of analytes, CA3147727, Canada, Pending
12. Electronic detection of a target based on enzymatic cleavage of a reporter moiety, KR20220024917, South Korea, Pending
13. Transport and detection of analytes, KR20220041914, South Korea, Pending
14. Transportation and detection of analytes, EP3993907, Europe, Pending
15. Dynamic excitation and measurement of biochemical interactions, WO2021252521, PCT, INP
16. Dynamic excitation and measurement of biochemical interactions, CA3182081, Canada, Pending
17. Dynamic excitation and measurement of biochemical interaction, CN116075717, China, Pending
18. Integrated circuit with 2D FETs for direct and indirect target signal measurement, US20220365024, USA, Pending
19. Enhanced selection of efficient targeted genome manipulating agents, US20200248173, USA, Pending
20. Electronic detection of a target based on enzymatic cleavage of a reporter moiety, US20200326300, USA, Pending
21. Dynamic excitation and measurement of biochemical interactions, US20210382045, USA, Pending
22. Electronic detection of a target based on enzymatic cleavage of a reporter moiety, EP3990630, Europe, Pending
23. Electronic detection of a target based on enzymatic cleavage of a reporter moiety, US11561197, USA, Granted
24. Enhanced selection of efficient targeted genome manipulating agents, US11713455, USA, Granted
25. Integrated circuit chip with 2D field-effect transistors and on-chip thin film layer deposition with electrical characterization, US20230273150, USA, Pending
26. Scalable apparatuses and models for determining analytically efficient transfer curve parameters for sensor ICs with 2D field effect transistors, US20230333051, USA, Pending
27. Dynamic excitation and measurement of biochemical interactions, EP4143557, Europe, Pending
28. Integrated circuit chip with 2D field-effect transistors and on-chip thin film layer deposition with electrical characterization, WO2023164157, PCT, Pending
29. Active agent delivery devices and methods of using the same, US20170246438, USA, Pending
30. Active agent delivery devices and methods of using the same, US20200316352, USA, Pending
31. Direct digital label-free identification, characterization and quantification of proteins, WO2022178039, PCT, Pending

RECENT PROFESSIONAL DEVELOPMENT ACTIVITIES

1. XPANSE Conference, Beyond Exponential, Abu Dhabi, Nov 2024 (Invited Speaker)
2. PRiME, Electrochemical Science, Oct 2024 (Invited Speaker)
3. 7th World Laureate Forum, Shanghai, China, Oct 2024 (Distinguished Invited speaker, nominated by US National Academies)
4. International Young Scientist Dialogue, Nature Springer, Beijing, China, Oct 2024

5. Think Tank, the stern stewart institute summit, Distinguished Speaker on Future of Semiconductor, AI and Health, Sep 2024
6. 75th Annual Meeting of ISE, Montreal, Canada, Invited Speaker, August 2024
7. Curious 2024, Future Insight Conference, Nature Springer, Mainz, Germany, July 2024 (Judge)
8. Lindau Nobel Laureate Meetings, Zurich, Switzerland, July 2024 (Judge and mentor)
9. World Minds, Nobel Laureate Luncheon, Zurich, Switzerland, June 2024 (Invited Speaker)
10. Young Global Academy, Annual International Conference, May 2024 (Organizer)
11. World minds: Annual symposium, Zurich, Switzerland, March 2024 (Invited Speaker)
12. San Diego Engineer's Week, San Diego Engineering Council, Feb 2024 (Distinguished speaker)
13. Material Research Society (MRS), Boston, MA, Nov 2023 (Distinguished Invited speaker)
14. 6th World Laureate Forum, Shanghai, China, Nov 2023 (Distinguished Invited speaker)
15. 9th American Arab Frontiers in Science symposium by National Academies, Oct 2023 (Invited Speaker)
16. NASA AMES research center, Mountain View, CA, June 2023 (Invited Speaker)
17. 2023 World Congress on Biosensors, Busan, South Korea, June 2023 (Invited Speaker)
18. World minds: Nobel Laurette Luncheon, Zurich, Switzerland, June 2023 (Invited Speaker)
19. Department of Biomedical Engineering, Imperial College London, London, UK, Feb 2023 (Invited Speaker)
20. Department of Biomedical Engineering, École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland, Feb 2023 (Invited Speaker)
21. Department of Biomedical Engineering, ETH Zurich, Zurich, Lausanne, Switzerland, Feb 2023 (Invited Speaker)
22. Department of Biomedical Engineering, Freiburg, Germany, Feb 2023 (Invited Speaker)
23. IEEE/EMBS 6th Micro- and Nanotechnology in Medicine Conference, Kapolei, HI, December 2022 (Invited Speaker)
24. Sanford Burnham Prebys Cancer Institute, San Diego, CA, August 2022(Invited Speaker)
25. Defense Innovation Unit, Lorton, VA, July 2022 (Invited Proposal Presentation)
26. NASA Ames Research Center, Moffett Field, CA July 2022 (Invited Speaker)
27. Synbio Beta Thought Leader Summit, London, July2022 (Invited Speakers)
28. Precision Medicine World Conference 2022, Santa Clara, CA, June 2022 (Invited Speaker)
29. Advances in Genome Biology and Technology (AGBT) General Meeting, June 2022 (Invited Speaker)
30. Society for In Vitro Biology (SIVB)'s Joint Animal and Plant Plenary Session "Chromosome engineering mediated by CRISPR/Cas9," San Diego, CA, June 2022 (Invited Speaker)
31. 2022MayoClinic Young Investigators Research Symposium, May2022(Invited Speaker)
32. Oregon State University–Oregon Health &Science University Seminar Series, May2022(Invited Speaker)
33. California University of Science and Medicine (CUSM)Research Seminar, April2022 (Invited Speaker)
34. University of California, San Diego, Mechanical and Aerospace Engineering (MAE) Department Seminar, April2022 (Invited Speaker)
35. Nature Conference Breaking Barriers Toward Gender Equity, March2022 (Invited Speaker)
36. Innovative Genomics Institute (IGI)Seminar Series at UC Berkeley, February2022(Invited Speaker)
37. University of California, Riverside's Department of Bioengineering Winter Seminar, virtual, February2022(Invited Speaker)
38. CiSTEAM and Science2030's CRISPR Innovation Bootcamp, January2022 (Keynote Speaker)
39. University of California, Irvine's Fall 2021 Pharmaceutical Sciences Seminar Series, December 2021 (Invited Speaker)
40. 9th Annual Sensors in Medicine Conference 2021, November 2021 (Invited Speaker)
41. University of Nevada, Reno's Chemical and Materials Engineering Seminar Series, November2021(Guest Speaker)
42. Synthego 's World CRISPR Day 2021, Women of CRISPR Panel, October2021(Invited Panelist)
43. University of California, Berkeley, Visiting Scholar and Postdoc Affairs' Panel Discussion, September 2021(Invited Panelist)
44. Genome Webinars' Emerging Methods to Minimize Off-Target Effects of Genome Editing: A Stakeholder Panel Discussion, September 2021 (Invited Panelist)

45. The Finding Genius Podcast: CRISPR, Research Benefits & The Impact it Makes in Our Lives, June 2021 (Invited Speaker)
46. University of California, Riverside, PERSIST Program, May2021(Invited Talk)
47. Advanced Material Future Preparedness Taskforce's MATTER2021 Forum, April2021(Invited Panelist)
48. NewYork University Spring Seminar, April 2021(Invited Speaker)
49. Scismic and Loyola Mary mount University's Women in Life Sciences, March2021(Invited Panelist)
50. The Scientist, Webinar, March 2021(Invited Panel Speaker) Title: From Tubes to Transistors to Biology Gated Transistors
51. Biosensors for Pandemics 2021, February2021(Invited Speaker) Title: Next Generation Graphene Transistors for Biological Threat
52. Women in Science and Engineering (WISE)National Conference, January 2021(Invited Panel Speaker)
53. IEEE/EMBS 5th Micro- and Nanotechnology in Medicine Conference, Kapolei, HI, December 2020 (Invited Speaker) (Invited Speaker)
54. Materials Research Society (MRS)Spring/Fall Meeting& Exhibit, December 2020 (Invited Speaker) Title: CRISPR-Powered Transistors—Harnessing Biology as Technology
55. University of California, Berkeley, November2020(Invited Guest Lecturer) Title: Using Biology-gated Transistors for Multiomics Applications
56. World CRISPR Day, Virtual, October2020(Invited Speaker) Title: An Automated Integrated Multiple Assay Technology utilizing CRISPR-based Transistors for CRISPR Quality Control Applications
57. Women in Biotech Lithuania, Lithuanian Biotechnology Association, October 2020 (Keynote Speaker)
58. United States Defense Threat Reduction Agency, Virtual, October 2020(Invited Speaker) Title: Using Biology-gated Transistors for Multiomics Applications
59. CRISPR Medicine News, July2020 (Virtual Talk) Title: The CRISPR-Chip can optimize your Cas, diagnose COVID19 and change our world
60. Synthego CRISPR Office Hours, May 2020, (Invited Speaker) Title: Fighting COVID-19 with CRISPR-Chip-Powered Diagnostics
61. Molecular Medicine Tri-Conference, SanFrancisco, CA, March 2020(Session Chair) Title: CRISPR-Powered: CRISPR-Powered Transistors for DNA Biosensing
62. W.M. Keck Science Department (Claremont McKenna, Pitzer, and Scripps Colleges) Keck Seminar Series, 2020 (Invited Speaker) Title: CRISPR-Powered: CRISPR-Powered Transistors for DNA Biosensing
63. PMWC, Santa Clara, CA, January 2020 (Invited Panelist) Title: How CRISPR Revolutionizes Genomic Medicine
64. California Institute of Technology, Pasadena, CA 2019 (Invited Talk) Title: CRISPR-Powered Transistors for DNA Biosensing
65. Point of Care Diagnostics, Global Health and Biosensors Conference 2019 (Invited Speaker) Title: CRISPR-Powered Transistors for DNA Biosensing
66. CRISPR Technologies Conference, Wurzburg Germany, 2019 (Invited Speaker) Title: CRISPR-Powered Transistors for DNA Biosensing
67. AGBT Precision Health Conference, San Diego, 2019 (Speaker and Poster Presentation) Title: Genome Sensor: The CRISPR-Chip Technology Allowing you to Google Genomes
68. GenomeEngineeringSummitHostedbySynthego,2019 CRISPR-Chip: A CRISPR-Powered Graphene Based DNA Search Engine
69. Keck Graduate Institute Women's Leadership Summit, 2019 (Invited Speaker)
70. Lab Roots Molecular Diagnostics Virtual Conference, 2019(Invited Speaker) Title: CRISPR-Chip: Detection of Unamplified Target Genes via CRISPR/CAS9 immobilized on Graphene Biosensors
71. Nature Conference on In Vitro Diagnostics 2019 (Invited Speaker)
72. Bioengineering Seminar Rising Stars UC Berkeley Bioengineering (Invited Speaker)
73. IEEE/EMBS 4th Micro- and Nanotechnology in Medicine Conference, Kuai, HI, December 2018 (Invited Speaker) Title: Graphene-based biosensors for research and diagnostic applications
74. International Drug Discovery Science and Technology (IDDST), 2018(Invited Talk) Title: Recent Advances and Challenges in Non-invasive Oral Drug Delivery Platforms

75. Drug Delivery West, 2018(Invited Talk), Title: Challenges in oral delivery of biologics using drug-device combinations
76. Materials Research Society (MRS), Boston, 2017(Invited Talk and Invited Chair, Biosensors) Title: Applications of Graphene in Medicine
77. Harvey Mudd College Seminar Series,2017(Invited Talk) Title: Point of Care Biosensors for Diagnostic Applications
78. University of California, Riverside, Department of Bioengineering, 2017(Invited Talk) Title: Medical Devices for Oral Drug Delivery and Clinical Diagnostics
79. ID Tech EX, Printed Sensors, 2016, (Invited Chair) Berkeley Sensor and Actuator Center, (BSAC), 2016,(Speaker) Title: Graphene-based Biosensors: From Functionalization to Sensing
80. University of Navarra, Spain: Center for Applied Medical Research (CIMA),2016(Invited Talk) Title: MEMS-based Devices for Oral Drug Delivery
81. University of Navarra, Spain: The School of Engineering (TECNUN), 2016 (Invited Talk) Title: Design and Construction of a Biosensor for Monitoring Oxidative Stress
82. Robert Bosch LLC, Research & Technology Center (Bosch, Palo Alto),2015(Invited Talk) Title: Early detection of drug induced liver toxicity utilizing a point of care biosensor
83. Biomedical Engineering Society Annual Meeting. San Antonio, (BMES),2014(Podium Presentation) Title: A Point of Care Digital Biosensor for Early Detection of Lipid Hydroperoxides for Early Prevention of Atherosclerosis
84. Biomedical Engineering Society Annual Meeting San Antonio, (BMES),2014(Podium Presentation) Title: 3D Printed Pills for Oral Delivery of Proteins and Peptides.
85. The Eighteen International Conference on Miniaturized Systems for Chemistry and Life Sciences *(MicroTAS)*, 2014 (Poster Presentation) Title: Digital Biosensors based on Biologically Responsive Polymers
86. Velocity pharmaceutical development Corporation (Velocity, South San Francisco), 2014,(Invited Talk) Title: A new MEMs based platform for oral delivery of protein-based drugs
87. Berkeley Sensor and Actuator Center, (BSAC), 2014, (Podium Presentation) Title: A digital biosensor for early detection of circulating reactive oxygen metabolites
88. University of California, Irvine, Department of Pharmaceutical Sciences, 2012(Invited Talk) Title: Blood separation in microfluidic devices
89. The 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences *(MicroTAS)*, 2014 (Poster Presentation) Title: Microfiltration Device for Continuous, Label-free Bacteria Separation from Whole Blood for Sepsis
90. The Seventh International Conference on Pediatric Mechanical Circulatory Support Systems and Pediatric Cardiopulmonary Perfusion, 2011 (Invited Talk) Title: Microfiltration Device for Continuous Intrinsic Separation of Blood Components during Mechanical Circulatory Support
91. The Sixth International Conference on Pediatric Mechanical Circulatory Support Systems and Pediatric Cardiopulmonary Perfusion, 2010 (Podium Presentation) Title: Differential Immune Activation During Simulated Cardiopulmonary Bypass Procedure Using Freshly Drawn and Week-Old Blood
92. The Thirteenth International Conference on Miniaturized Systems for Chemistry and Life Sciences *(MicroTAS)*,2009 (Poster Presentation) Title: A two Compartment Microdialysis Microdevice for Continuous Protein Extraction from Whole blood
93. The Fourth Annual NOAA-CREST Symposium, (NOAA)2006, (Poster Presentation). Title: Correlation between Fluorescence Height and Chlorophyll a Concatenation based on the Field Measurements and Satellite Data for Chesapeake Bay

CURRENT RESEARCH INTEREST

1. Understanding the role of Red Blood Cells in Neurological Diseases (Diagnostics and Therapeutics)
2. Organ On-Chip Technologies for Aging Research (Examining the impact of innovative blood intervention to reverse the health of aging organs)
3. Integration of Biology with Modern Electronics for Early Cancer Detection)

4. CRISPR Biophysical Properties (Understanding the role of CRISPR formulation biophysical properties such as Kinetics of DNA binding and cleavage in Therapeutic efficiency)
5. CRISPR-based Diagnostics Platforms
6. Utilization of Novel Polymers and Chemical linkers within Semiconductor-based Devices for Biosensing Applications
7. Assembly, Encapsulation, and Interconnection of Semiconductor-based Devices for Biosensing Applications
8. Design and Fabrication of Noninvasive Drug Delivery Systems for Noninvasive Delivery of Biologics