I. Personal

July 2022

JEFFREY EDWARD DICK (he/him)

Department of Chemistry, College of Science
Purdue University
560 Oval Drive
West Lafayette, Indiana 47906
jdick@purdue.edu
Laboratory Website | Faculty Page

II. Education

Ph.D, Chemistry	The University of Texas at Austin	2013 – 2017
Thesis Advisor: Allen J. Bard	Thesis Title: "Studies in the Electrochemistry of Single Atoms, Molecules, and Nanoparticles."	
B. S., Chemistry (Summa Cum Laude)	Ball State University	2010 – 2013

III. Professional Experience

Richard B. Wetherill Associate Professor, Purdue University	2022 –
Associate Member, Lineberger Comprehensive Cancer Center	2019 – 2022
Assistant Professor, The University of North Carolina at Chapel Hill	2018 – 2022
NIH CORE Postdoctoral Scholar, The University of Texas at Austin (Advisor: Prof. K. M. Miller)	2017 – 2018

IV. Honors

• 2023 Royce W. Murray Young Investigator Award (SEAC & Pittcon)	Apr. 2022
• 2021 Alfred P. Sloan Research Fellow	Feb. 2021
• 2021 NSF CAREER Award	Jan. 2021
• NIH NIGMS MIRA R35 Outstanding Investigator Award	Sept. 2020
• Forbes' 30 Under 30 (Science Category)	Nov. 2018
• NIH CORE Postdoctoral Fellowship	June 2017
• Medical Technology's 30 Under 30 Young Innovators	July 2016
• Representative; US Delegation to Lindau Meeting for Nobel Laureates	July 2015
• National Science Foundation Graduate Research Fellowship	April 2014
• Graduate Dean's Prestigious Fellowship Award	June 2014
• National Defense Science & Engineering Graduate Research Fellowship, declined	April 2014
• US Fulbright Scholarship Recipient, declined to work with A. J. Bard	Jan. 2013
• NASA Fellowship – Ames Research Center	May 2013
• Mikal Sousa Memorial Scholarship: Ball State University	Oct. 2012
• ACS Division of Inorganic Chemistry Award in Inorganic Chemistry	Aug. 2012
• Member, Dean's Advisory Council, Ball State University	Aug. 2012
• Presidential Scholarship: Ball State University; one-half tuition	Aug. 2010

V. Bibliography and Products of Scholarship *(Link to Google Scholar)*

A.) Books & Book Chapters

1. Glasscott, M. W.; Dick, J. E.* Progress in the Detection and Quantification of Per- and Polyfluoroalkylsubstances in Surface Water, from Progress in Fluorine Series: Regulations, detection, degradation, synthesis, and issues of PFASs." **2022**, Accepted, Edited by Bruno Ameduri, The Royal Society of Chemistry, Ahead of Print.
2. Dick, J. E.; Renault, C. Single Entity Electrogenerated Chemiluminescence. Chapter 11 from the Book: *Analytical Electrogenerated Chemiluminescence: From Fundamentals to Bioassays*, **2019**, Edited by Neso Sojic, The Royal Society of Chemistry. *Link*

B.) Patents Filed

1. Dick, J. E.; Vannoy, K. J. Method for Detecting Cocaine from Complex Powders.
2. Principle, Method, and Device about the Biosensors Based on dOCP/dt Measurement, Under Review. Co-inventor with Prof. Koji Sode.

C.) Refereed Papers/Articles (Accepted or Published – Independent Career at UNC)

** = Corresponding Author, # = Undergraduate Co-author*

1. Reyes-Morales, J.; Moazeb, M.#; Colón-Quintana, G.; **Dick, J. E.*** The Electroneutrality Condition Allows for the Electrodeposition of Gold Nanoparticles from Water Nanodroplets, **2022**, *Chemical Communications*, Accepted.
2. Goines, S.; Dick, J. E.* Investigating the Cytotoxic Redox Mechanism of PFOS within Hep G2 by Hyperspectral Assisted Scanning Electrochemical Microscopy, *Analyst*, **2022**, Accepted.
3. Vannoy, K. J.; Krushinski, L.; Kong, E. F.#; **Dick, J. E.*** Reagentless Voltammetric Identification of Cocaine from Complex Powders, **2022**, *Analytical Chemistry*, Accepted.
4. Vannoy, K. J.; **Dick, J. E.*** The Oxidation of Cysteine by Electrogenerated Hexacyanoferrate (III) in Microliter Droplets, **2022**, *Langmuir*, Accepted.
5. Goines, S.; Deng, M.#; Glasscott, M. W.; Leung, J. W. C.; **Dick, J. E.*** Enhancing Scanning Electrochemical Microscopy's Potential to Probe Dynamic Co-Culture Systems via Hyperspectral Assisted Imaging, *Analyst*, **2022**, Ahead of Print.
6. Vannoy, K. J.; Tarolla, N. E.; Kauffmann, P. J.; Clark, R. B.; **Dick, J. E.*** Detecting Methamphetamine in Aerosols by Electroanalysis in a Soap Bubble Wall, *Analytical Chemistry*, **2022**, 94, 6311 – 6317. *Link*
7. Clarke, T. B.; Dick, J. E.* Preferential Electroreduction at the Oil|Water|Conductor Interface, *Journal of Physical Chemistry Letters*, **2022**, *13*, 3338 – 3341. *Link*
8. Reyes-Morales, J.; Vanderkwaak, B.#; **Dick, J. E.*** Enabling Practical Nanoparticle Electrodeposition from Aqueous Nanodroplets, *Nanoscale*, **2022**, *14*, 2750 – 2757. *Link* [Journal Pages = 8]
9. Takamatsu, S.; Lee, I.; Lee, J.; Asano, R.; Tsugawa, W.; Ikebukuro, K.; **Dick, J. E.**; Sode, K. Transient Potentiometry-based D-Serine Sensor using Engineered D-Amino Acid Oxidase Showing Quasi-Direct Electron Transfer Property, *Biosensors and Bioelectronics*, **2022**, *200*, 113927. *Link* [Journal Pages = 10]
10. Walker, N. L.; **Dick, J. E.*** Versatile Potentiometric Metabolite Sensing without Dioxygen Interference, *Biosensors and Bioelectronics*, **2022**, *201*, 113888. *Link* [Journal Pages = 8]
11. Reyes-Morales, J.; Glasscott, M. W.; Pendergast, A. D.#; Goines, S.; **Dick, J. E.*** The Oxidation of Ferrocene in Sessile Toluene Macro and Microdroplets: An Opto-electrochemical Study, *Journal of Electroanalytical Chemistry*, **2022**, *905*, 115922. *Link* [Journal Pages = 7]
12. Kauffmann, P. J.; Park, N. A.; Clark, R. B.; Glish, G. L.; **Dick, J. E.*** Aerosol Electroanalysis by PILSNER: Particle-into-Liquid Sampling for Nanodroplet Electrochemical Reactions, *ACS Measurement Science Au*, **2022**, 2, 106 – 112. *Link* [Journal Pages = 8]
13. Tarolla, N. E.; Voci, S.; Reyes-Morales, J.; Pendergast, A. D.#; **Dick, J. E.*** Electrodeposition of Ligand-Free Copper Nanoparticles from Aqueous Nanodroplets, *Journal of Materials Chemistry A*, **2021**, 9, 20048 – 20057. *Link* [Journal Pages = 11]

14. Clarke, T. B.; Glasscott, M. W.; **Dick, J. E.*** The Role of Oxygen in the Voltaic Pile, *Journal of Chemical Education*, **2021**, *98*, 2927 – 2936. *Link* [Journal Pages = 10]
15. Clark, R. B.; **Dick, J. E.*** Towards Deployable Electrochemical Sensors for Per- and Polyfluoroalkyl Substances (PFAS), *Chemical Communications*, **2021**, 57, 8121 – 8130. *Link* [Journal Pages = 10]
16. Vannoy, K. J.; Lee, I.; Sode, K.; Dick, J. E.* Electrochemical Quantification of Accelerated FADGDH Rates in Aqueous Nanodroplets, *Proceedings of the National Academy of Sciences USA*, **2021**, *118*, e2025726118. *Link* [Journal Pages = 5]
    - Highlighted in *C&E News*: *Link*
17. Walker, N. L.; Dick, J. E.* Leakless, Bipolar Reference Electrodes: Fabrication, Performance, and Miniaturization, *Analytical Chemistry*, **2021**, *93*, 10065 – 10074. *Link* [Journal Pages = 10]
    - ACS Editors' Choice
18. Sanchez, A. O.; **Dick, J. E.**; Larion, E.; Cabrera, C. R.* Anodic Coulometry of Zero-Valent Iron Nanoparticles, *Journal of Electroanalytical Chemistry*, **2021**, *896*, 115331. *Link*
19. Clark, R. B.; Glasscott, M. W.; Verber, M. D.; Demartino, J.[#]; Netchaev, A.; Ray, J.; Brown, E.; Alberts, E.; Fernando, P. U. A.; Moores, L. C.; Dick, J. E.* A Generalized Potentiostat Adaptor for Multiplexed Electroanalysis, *Analytical Chemistry*, **2021**, *93*, 7381 – 7387. *Link* [Journal Pages = 7]
20. Vannoy, K. J.; Ryabykh, A.[#]; Chapoval, A. I.; Dick, J. E.* Single Enzyme Electroanalysis, *Analyst*, **2021**, 146, 3413 – 3421, Invited. *Link* [Journal Pages = 9]
    - Selected as an *Analyst* HOT article
21. Walker, N. L.; Roshkoleva, A.[#]; Chapoval, A. I.; Dick, J. E.* Recent Advances in Potentiometric Biosensing, *Current Opinion in Electrochemistry*, **2021**, *28*, 100735, Invited. *Link* [Journal Pages = 4]
22. Glasscott, M. W.; Voci, S.; Kauffmann, P. J.; Chapoval, A. I.; Dick, J. E.* Mapping Solvent Entrapment in Multiphase Systems by Electrogenerated Chemiluminescence, *Langmuir*, **2021**, *37*, 2907 – 2912. *Link* [Journal Pages = 6]
23. Walker, N. L.; Dick, J. E.* Oxidase-Loaded Hydrogels for Versatile Potentiometric Metabolite Sensing, *Biosensors & Bioelectronics*, **2021**, *178*, 112997. *Link* [Journal Pages = 7]
24. Pendergast, A. D.[#]; Renault, C.; Dick, J. E.* Correlated Optical-Electrochemical Measurements Reveal Bidirectional Current Steps for Graphene Nanoplatelet Collisions at Ultramicroelectrodes, *Analytical Chemistry*, **2021**, *93*, 2898 – 2906. *Link* [Journal Pages = 9]
25. Pendergast, A. D.[#]; Deng, Z.; Moroun, F.; Renault, C.; Dick, J. E.* Revealing Dynamic Rotation of Single Graphene Nanoplatelets on Electrified Microinterfaces, *ACS Nano*, **2021**, *15*, 1250 – 1258. *Link* [Journal Pages = 9]
26. Kazemi, R.; Tarolla, N. E.; Dick, J. E.* Ultrasensitive Electrochemistry by Radical Annihilation Amplification in a Solid-Liquid Microgap, *Analytical Chemistry*, **2020**, *92*, 16260 – 16266. *Link* [Journal Pages = 7]
27. Clark, R. B.; Dick, J. E.* Electrochemical Sensing of Perfluorooctanesulfonate (PFOS) using Ambient Oxygen in River Water, *ACS Sensors*, **2020**, *5*, 3591 – 3598. *Link* [Journal Pages = 8]
    - ACS Editors' Choice
    - Highlighted in *C&E News*, *Link*
28. Glasscott, M. W.; Vannoy, K. J.; Fernando, P. U. A. I.; Kosgei, G. K.; Moores, L. C.; Dick, J. E.* Electrochemical Sensors for the Detection of Fentanyl and its Analogs: Foundations and Recent Advances, *Trends in Analytical Chemistry*, **2020**, *132*, 116037, Invited. *Link* [Journal Pages = 10]
29. Glasscott, M. W.; Dick, J. E.* Electrodeposition in Aqueous Nano-Reactors, *Current Opinion in Electrochemistry*, **2020**, 25, 100637, Invited. *Link* [Journal Pages = 6]
30. McCormick, H. K.[#]; Dick, J. E.* Nanoelectrochemical Quantification of Single Cell Metabolism, *Analytical and Bioanalytical Chemistry*, **2020**, *413*, 17 – 24. *Link* [Journal Pages = 8]

31. Deng, Z.; Maroun, F.; Dick, J. E.; Renault, C. Detection of Individual Conducting Graphene Nanoplatelet by Electrocatalytic Depression, *Electrochimica Acta*, **2020**, *355*, 136805. *Link* [Journal Pages = 7]
32. Kazemi, R. R.; Potts, E. I.[#]; Dick, J. E.* Quantifying Interferent Effects on Molecularly Imprinted Polymer Sensors for Per- and Polyfluoroalkyl Substances, *Analytical Chemistry,* **2020**, *92*, 10597 – 10605. *Link* [Journal Pages = 9]
33. Weatherly, C. T.[#]; Glasscott, M. W.; Dick, J. E.* Voltammetric Analysis of Redox Reactions and Ion Transfer in Water Microdroplets, *Langmuir*, **2020,** *36*, 8231 – 8239. *Link* [Journal Pages = 9]
34. Glasscott, M. W.; Dick, J. E.* Visualizing Phase Boundaries with Electrogenerated Chemiluminescence, *Journal of Physical Chemistry Letters*, **2020**, *11*, 4803 – 4808. *Link* [Journal Pages = 6]
35. Glasscott, M. W.; Kazemi, R. R.; Vannoy, K. J.; Verber, M. D.; Dick, J. E.* μ-MIP: Molecularly Imprinted Polymer-Modified Microelectrodes for the Ultrasensitive Quantification of GenX (HFPO-DA) in River Water, *Environmental Science & Technology Letters*, **2020**, *7*, 489 – 495. *Link* [Journal Pages = 7]
    - ACS Editors' Choice
36. Glasscott, M. W.; Hill, C. M.; Dick, J. E.* Quantifying Growth Kinetics of Single Nanoparticles in Sub-Femtoliter Reactors, *Journal of Physical Chemistry C*, **2020**, *124*, 14380 – 14389. *Link* [Journal Pages = 10]
    - Selected for cover image
37. Smith, L. A.[#]; Glasscott, M. W.; Vannoy, K. J.; Dick, J. E.* Enzyme Kinetics via Open Circuit Potentiometry, *Analytical Chemistry*, **2020**, *92*, 2266 – 2273. *Link* [Journal Pages = 8]
38. Glasscott, M. W.; Verber, M. D.; Hall, J. R.; Pendergast, A. D.[#]; McKinney, C. J.; Dick, J. E.* SweepStat: A Build-it-Yourself, Two-Electrode Potentiostat for Macroelectrode and Ultramicroelectrode Studies, *Journal of Chemical Education,* **2020**, *97*, 265 – 270. *Link* [Journal Pages = 6]
39. Goines, S.; Dick, J. E.* Electrochemistry's Potential to Reach the Ultimate Sensitivity in Measurement Science, *Journal of the Electrochemical Society*, **2020**, *167*, 037505. *Link* [Journal Pages = 13]
40. Goines, S.; Dick, J. E.* Electrochemical Characterization of Nicotinamide Riboside, *ChemElectroChem*, **2019,** *6*, 5264 – 5272. *Link* [Journal Pages = 9]
41. Glasscott, M. W.; Pendergast, A. D.[#]; Goines, S.; Hoang, A. T.[#]; Bishop, A. R.[#]; Renault, C.; Dick, J. E.* Electrosynthesis of High Entropy Metallic Glass Nanoparticles for Designer, Multifunctional Electrocatalysis, *Nature Communications*, **2019**, Article No. 2650, *Link* [Journal Pages = 8]
    - Editors' Highlight
42. Fies, W.; Dugger, J. W.; Dick, J. E.; Wilder, L.; Browning, K.; Doucet, M.; Browning, J. F.; Webb, L. J. Direct Measurement of Water Permeation in Submerged Alkyl Thio Self-Assembled Monolayers on Gold Surfaces Revealed by Neutron Reflectometry, *Langmuir*, **2019**, *35*, 5647 – 5662. *Link* [Journal Pages = 16]
43. Glasscott, M. W.; Dick, J. E.* Fine-Tuning Porosity and Time-Resolved Observation of Nucleation and Growth of Single Platinum Nanoparticles*, ACS Nano*, **2019**, *13*, 4572 – 4581. *Link* [Journal Pages = 10]
44. Glasscott, M.; Pendergast, A. D.[#]; Choudhury, M. H.; Dick, J. E.* Advanced Characterization Techniques for Evaluating Porosity, Nanopore Tortuosity, and Electrical Connectivity at the Single Nanoparticle Level, *ACS Applied Nano Materials,* **2019**, *2*, 819 – 830. *Link* [Journal Pages = 12]
    - ACS Editors' Choice
45. Pendergast, A. D.[#]; Glasscott, M. W.; Renault, C.; Dick, J. E.* One-Step Electrodeposition of Ligand-Free PdPt Alloy Nanoparticles: Controlling Size, Coverage, and Elemental Stoichiometry. *Electrochemistry Communications*, **2019**, 1 – 5. *Link* [Journal Pages = 5]
46. Glasscott, M. W.; Pendergast, A. D.[#]; Dick, J. E.* A Universal Platform for the Electrodeposition of Ligand-Free Metal Nanoparticles from a Water-in-Oil Emulsion, *ACS Applied Nano Materials*, **2018**, *1*, 5202 – 5711. *Link* [Journal Pages = 10]

47. Glasscott, M.; Dick, J. E.* Direct Electrochemical Observation of Single Cluster Electrocatalysis on Ultramicroelectrodes, *Analytical Chemistry*, **2018**, *90*, 7804 – 7808. *Link* [Journal Pages = 5]

D.) Pre-independent Career

48. Zhou, M.; Dick, J. E.; Hu, K.; Mirkin, M. V.; Bard, A. J. Ultrasensitive Electroanalysis: Femtomolar Determination of Lead, Cobalt, and Nickel, *Analytical Chemistry*, **2018**, *90*, 1142 – 1146. *Link*
49. Zhou, M.; Dick, J. E.; Bard, A. J. Electrodeposition of Isolated Platinum Atoms and Clusters on Bismuth – Characterization and Electrocatalysis, *Journal of the American Chemical Society*, **2017**, *137*, 17677 – 17682. *Link*
50. Percival, S. J.; Dick, J. E.; Bard, A. J. Cathodically Dissolved Platinum Resulting from the O_2 and H_2O_2 Reduction Reactions on Platinum Ultramicroelectrodes, *Analytical Chemistry*, **2017**, *89*, 3087 – 3092. *Link*
51. Kim, J.; Dick, J. E.; Bard, A. J. Advanced Electrochemistry of Individual Metal Clusters Electrodeposited Atom by Atom to nanometer by Nanometer, *Accounts of Chemical Research*, **2016**, *49*, 2587 – 2595. *Link*
52. Dick, J. E.*; Electrochemical Detection of Single Cancerous and Healthy Cell Collisions on a Microelectrode, *Chemical Communications*, **2016**, *52*, 10906 – 10909 . *Link*
53. Dick, J. E.; Bard, A. J. Toward the Digital Electrochemical Recognition of Cobalt, Iridium, Nickel, and Iron Ion Collisions by Catalytic Amplification, *Journal of the American Chemical Society*, **2016**, *138*, 8446 – 8452. *Link*
54. Deng, H.; Dick, J. E. ; Kummer, S.; Kragl, U.; Strauss, S. H.; Bard, A. J. Probing Ion Transfer across Liquid-Liquid Interfaces by Monitoring Collisions of Attoliter Oil Droplets, *Analytical Chemistry*, **2016**, *88*, 7754 – 7761. *Link*
55. Dick, J. E.; Lebegue, E.; Strawsine, L. M.; Bard, A. J. Millisecond Coulometry Using Zeptoliter Droplet Collisions on Ultramicroelectrodes, *Electroanalysis*, **2016**, *28*, 2320 – 2326. *Link*
56. Dick, J. E.; Hilterbrand, A. T.; Strawsine, L. M.; Upton, J. W.; Bard, A. J. Enzymatically Enhanced Collisions on Ultramicroelectrodes for Detecting Individual Viruses, *Proceedings of the National Academy of Sciences*, **2016**, *113*, 6403 – 6408. *Link*
57. Edwards, M.; German, S.; Dick, J. E.; Bard, A. J.; White, H. S. A High-speed Multi-pass Coulter Counter with Ultra-fast Resolution, *ACS Nano*, **2015**, *9*, 12274 – 12282. *Link*
58. Dick, J. E.; Bard, A. J. Recognizing Single Collisions of $PtCl_6^{2-}$ at Femtomolar Concentrations on Ultramicroelectrodes by Nucleating Electrocatalytic Clusters, *Journal of the American Chemical Society*, **2015**, *137,* 13752 – 13755. *Link*
59. Lebegue, E.; Anderson, C. M.; Dick, J. E.; Webb, L.; Bard, A. J. Electrochemical Detection of Single Phospholipid Vesicle Collisions at a Pt Ultramicroelectrode, *Langmuir*, **2015**, *31,* 11734 – 11739. *Link*
60. Li, Y.; Deng, H.; Dick, J. E.; Bard, A. J. Analyzing Benzene and Cyclohexane Emulsion Droplet Collisions on Ultramicroelectrodes, *Analytical Chemistry*, **2015**, *87,* 11013 – 11021. *Link*
61. Dick, J. E.; Poirel, A.; Ziessel, R.; Bard, A. J. Electrochemistry, Electrogenerated Chemiluminescence, and Electropolymerization of Oligothienyl-BODIPY Derivatives, *Electrochimica Acta*, **2015**, *178*, 234 – 239. *Link*
62. Dick, J. E.; Renault, C.; Bard, A. J. Observation of Single Protein and DNA Macromolecule Collisions on Ultramicroelectrodes. *Journal of the American Chemical Society*, **2015**, *137,* 8376 – 8379. *Link*
63. Dick, J. E.; Hilterbrand, A. T.; Boika, A.; Upton, J. W.; Bard, A. J. Electrochemical Detection of a Single Cytomegalovirus at an Ultramicroelectrode and its Antibody Anchoring, *Proceedings of the National Academy of Sciences,* **2015**, *112,* 5303 – 5308. *Link*
64. Arroyo-Curras, N.; Hall, J.; Dick, J.E.; Bard, A.J. An Alkaline Flow Battery Based on the Coordination Chemistry of Iron and Cobalt. *Journal of the Electrochemical Society*, **2014**, *162,* A378 – A383. *Link*

65. Dick, J. E.; Renault, C.; Kim, B. K.; Bard, A. J.; Electrogenerated Chemiluminescence of Common Organic Luminophores in Water Using an Emulsion System, *Journal of the American Chemical Society*, 2014, *136*, 13546 – 13549. *Link*
66. Dick, J. E.; Renault, C.; Kim, B. K.; Bard, A. J. Simultaneous Detection of Single Attoliter Droplet Collisions by Electrochemical and Electrogenerated Chemiluminescent Responses *Angewandte Chemie International Edition,* 2014, *53*, 11859 – 11862. *Link*
67. Kim, B.; Boika, A.; Kim, J.; Dick, J.E.; Bard, A.J. Characterizing Emulsions by Observation of Single Droplet Collisions – Attoliter Electrochemical Reactors. *Journal of the American Chemical Society*, 2014, *136*, 4849 – 4852. *Link*
68. Dick, J.E.; Chong, D. Indispensable Applications of Electrochemical Techniques to Organic Synthetic Reactions: Enhancing Versatility and Sustainability. *Organic Chemistry Current Research*, 2012. *Link*
69. Chong, D.; Dick, J.E.; Shin, W. C-C and C-O Coupling Reactions of Terminal Alkynes by a Water Soluble Organoiridium Electron-transfer Mediator in Thin Layer of Water on Gold Electrode. *Organic Chemistry Current Research*, 2012. *Link*

E. Invited Lectures

1. March 2022, The University of Washington, Seattle, WA.
2. March 2022, The University of Akron, Virtual.
3. January 2022, Purdue University, West Lafayette, IN.
4. November 2021, The College of Charleston, Virtual.
5. September 2021, The University of Wyoming, Laramie, WY.
6. September 2021, The University of Michigan, Ann Arbor, MI.
7. April 2021, The Ohio State University, Virtual.
8. April 2021, Brigham Young University, Virtual.
9. March 2021, Youngstown State University, Virtual.
10. March 2021, Waters Symposium with Department of Defense, Virtual.
11. March 2021, Pittsburgh National Conference, Virtual, Sensors for PFAS.
12. March 2021, Pittsburgh National Conference, Virtual, Single Enzyme Electroanalysis.
13. October 2020, Virtual Workshop on High Entropy Alloy and Complex Solid Solution Nanoparticles for Electrocatalysis, Virtual.
14. August 2020, NSF Chemistry Division COVID-19 Projects, Virtual.
15. March 2020, Pittsburgh National Conference, Chicago, IL.
16. January 2020, National Institute of Environmental Health Sciences, Durham, NC.
17. November 2019, National Academies Workshop on Electrochemistry, Washington, DC.
18. November 2019, North Carolina Central University, Durham, NC.
19. August 2019, ACS National Conference, San Diego, CA.
20. 2019, Army Corps of Engineers, Vicksburg, MS.
21. July 2019, Altai State Technical University, Barnaul, RS.
22. June 2019, University of Warwick, Warwick, UK.
23. May 2019, University of Bordeaux, Bordeaux, France.
24. May 2019, University of Paris Diderot #7, Paris, France.
25. May 2019, Centre National de la Recherche Scientifique, Polytechnique, Paris, France.
26. May 2019, International Stress and Behavior Conference, St. Petersburg, Russia.
27. April 2019, North Carolina State University, Raleigh, NC.
28. April 2019, University of Arkansas Medical School, Little Rock, AR.
29. April 2019, Sandia National Laboratories, Albuquerque, NM.

30. March 2019, NSF Workshop: Reconfigurable Sensor Systems Integrated with Artificial Intelligence and Data Harnessing to Enable Personalized Medicine, Alexandria, VA.
31. November 2018, SERMACS, Augusta, GA.
32. October 2018, University of Puerto Rico, San Juan, Puerto Rico.
33. October 2016, Zhejiang Institute of Science and Technology, Hangzhou, China.
34. November 2016, University of Cincinnati, Cincinnati, OH.
35. September 2016 Skolkovo Institute of Science at Technology, Moscow, Russia.
36. June 2016, Ball State University, Muncie, IN.
37. March 2016, Pittsburgh National Conference, Atlanta, GA.
38. Dick, J. E. From Microspheres to Molecules: Electrochemical Detection of Soft Particles on Ultramicroelectrodes. March 2015, Pittsburgh National Conference, New Orleans, LA.

VI. Teaching Activities

A. Courses	*Course #*	*# Students*	*Semester*
Electroanalytical Chemistry	CHEM 445	18 students	Fall 2021
No Teaching – Leave			Spring 2021
Electroanalytical Chemistry	CHEM 445	19 students	Fall 2020
Intermediate Analytical Chemistry	CHEM 441	22 students	Spring 2020
Electroanalytical Chemistry	CHEM 445	24 Students	Fall 2019
No Teaching – First year Asst. Prof. teaching release			Spring 2019
Electroanalytical Chemistry	CHEM 445	26 students	Fall 2018

B. Current Graduate Students:

1. Sondrica Goines (B.S. College of Charleston, 4th year student)
2. Kathryn Vannoy (B.S. William & Mary, 3rd year student)
3. Nicole Walker (B.S. Univ. Illinois Chicago, 3rd year student)
4. Joshua Reyes-Morales (B.S. Univ. Puerto Rico, 3rd year student)
5. Rebecca Clark (B.S. California State University, 3rd year student)
6. Thomas Clarke (B.S. Univ. Notre Dame, 2nd year student)
7. Guillermo Colón (B.S. Univ. Puerto Rico, 2nd year student)
8. Philip Kauffmann (B.S. Cedarville, 2nd year student)
9. Lynn Krushinski (B.S. Towson, 1st year student)
10. Vanshika Gupta (B.S. Johns Hopkins, 1st year student)

C. Current Postdoctoral Scholars:

1. Dr. Silvia Voci, Ph.D from the University of Bordeaux w/Prof. Neso Sojic (January 2020 – Present)
2. Dr. Christophe Renault from CNRS (April 2022 – Present)

D. Former Group Members (Limited to Ph.D students & postdoctoral scholars):

1. Dr. Kasha Lim, Ph.D (former postdoc, current postdoc at UCSB)
2. Dr. Matthew Glasscott, Ph.D (former Ph.D student, currently with U.S. Army Corps of Engineers)
3. Dr. Moinul Choudhury, Ph.D (former postdoc, currently Asst. Prof. at Daffodil University)
4. Dr. Rezvan Kazemi, Ph.D (former postdoc, currently postdoc at UNC-CH)
5. Miss Nicole Tarolla, M.S. (former graduate student, currently at KBI Biopharma)

E. Dissertations Supervised:

1. Matthew Glasscott, Ph.D, March 2021, Dissertation Title: *Nanodroplet-Mediated Electrodeposition: Fundamental Principles and Applications to Nanomaterial Synthesis*. Degree conferred May 2021.
2. Sondrica Goines, Ph.D, July 2022, Dissertation Title: Hyperspectral-Assisted Scanning Electrochemical Microscopy for Single Cell Analysis. Degree conferred August 2022.

F. Undergraduate Honors Projects (UNC):

1. Jenna Demartino, Senior Honors Thesis (2022 Graduate with Highest Honors), "Multiplexed Electroanalysis of Perfluorooctanesulfonate (PFOS) and Lead." This thesis resulted in one peer-reviewed publication:
    - Clark, R. B.; Glasscott, M. W.; Verber, M. D.; Demartino, J.[#]; Netchaev, A.; Ray, J.; Brown, E.; Alberts, E.; Fernando, P. U. A.; Moores, L. C.; Dick, J. E.* A Generalized Potentiostat Adaptor for Multiplexed Electroanalysis, *Analytical Chemistry*, 2021, *93*, 7381 – 7387. *Link*
2. Alli Smith, Senior Honors Thesis (2020 Graduate with Highest Honors), "Enzyme Kinetics *via* Open Circuit Potentiometry." This thesis resulted in one peer-reviewed publication:
    - Smith, L. A.[#]; Glasscott, M. W.; Vannoy, K. J.; Dick, J. E.* Enzyme Kinetics via Open Circuit Potentiometry, *Analytical Chemistry*, 2020, *92*, 2266 – 2273. *Link*
3. Andrew Pendergast, Senior Honors Thesis (2020 Graduate with Highest Honors), "Fundamental Collision Dynamics of Asymmetric Nanoentities Revealed by Correlated Electrochemistry and Optical Microscopy." This thesis resulted in two peer-reviewed publications:
    - Pendergast, A. D.[#]; Renault, C.; Dick, J. E.* Correlated Optical-Electrochemical Measurements Reveal Bidirectional Current Steps for Graphene Nanoplatelet Collisions at Ultramicroelectrodes, *Analytical Chemistry*, 2021, *93*, 2898 – 2906. *Link*
    - Pendergast, A. D.[#]; Deng, Z.; Moroun, Z.; Renault, C.; Dick, J. E.* Revealing Dynamic Rotation of Single Graphene Nanoplatelets on Electrified Microinterfaces, *ACS Nano*, 2021, 15, 1250 – 1258. *Link*
4. Andy Hoang, Senior Honors Thesis (2020 Graduate with Highest Honors), "Electrosynthesis of Designer Electrocatalytic High-Entropy Nanoparticles & Studying the Effect of Polishing to Develop Designer Polishing Nanoparticles." This thesis resulted in one peer-reviewed publication:
    - Glasscott, M. W.; Pendergast, A. D.[#]; Goines, S.; Hoang, A. T.[#]; Bishop, A. R.[#]; Renault, C.; Dick, J. E.* Electrosynthesis of High Entropy Metallic Glass Nanoparticles for Designer, Multifunctional Electrocatalysis, *Nature Communications*, 2019, Article No. 2650, *Link*

G. Graduate Student and Undergraduate Student Awards:

Rebecca B. Clark (Graduate Student)

- 2021 National Science Foundation Graduate Research Fellow Honorable Mention

Guillermo Colón-Quintana

- 2022 National Science foundation Graduate Research Fellow Honorable Mention

Matthew Glasscott (Graduate Student)

- 2021 IMPACT Award (UNC Graduate School, *Link*)
- 2020 ORISE Fellow (United States Army Corps of Engineers)
- 2019 Bost Fellow (UNC Chemistry Dept. Fellowship)
- 2018 National Science Foundation Graduate Research Fellow Honorable Mention

Sondrica Goines (Graduate Student)
- 2022 AC/DC Rising Star in Analytical Chemistry
- 2020 Winifred Burks-Houck Graduate Leadership Award
- 2020 National Science Foundation Graduate Research Fellow

Nicole Tarolla (Graduate Student)
- 2021 Society for Electroanalytical Chemistry Best Poster Winner (Pittsburgh Conference, virtual)

Kathryn Vannoy (Graduate Student)
- 2020 Department of Justice Graduate Fellowship

Hadley McCormick (Undergraduate)
- Department of Chemistry Summer Research Award

Andrew Pendergast (Undergraduate from 2018 - 2020)
- 2021 National Science Foundation Graduate Research Fellow
- 2020 National Science Foundation Graduate Research Fellow Honorable Mention
- 2020 ECS Summer Fellowship
- 2019 ACS Award for Analytical Chemistry
- 2019 Jason D. Altom Award
- 2019 Goldwater Scholar
- 2018 David L. Stern Award

Connor Weatherly (Undergraduate)
- 2020 National Science Foundation Graduate Research Fellow

VII. Grants (Total to Dick group: $5,785,356)

A. Current Extramural Support

1. "Deployable Electrochemical Sensors for Trace Metals, Munitions, and Emerging Micropollutants in Aerosols." United States Army Corps of Engineers (Award # not yet assigned), 9/2021 – 9/2024, $928,705 (Sole PI, Percent Effort: $5%).
2. Alfred P. Sloan Research Fellowship (FG-2021-15486), 09/2021 – 09/2023, $75,000 (sole-PI, Percent Effort: 4%).
3. "CAREER: Electro-Shock Synthesis of High Entropy Alloy Nanoparticles from Sub-Femtoliter Reactors." National Science Foundation (CHE2045672), 05/2021 – 05/2026, $700,000 (Sole PI, Percent Effort: 5%).
4. "Amphibious Unmanned Ground Vehicle Sensor System for Rapid Detection of PFAS in Water." United States Army Corps of Engineers (W912HZ-19-BAA), 10/05/2020 – 10/04/2023, $1,600,797 (sub-contract with Mississippi State). Total to my group is $359,925 (Percent Effort: 5%).
5. "Nanoelectrochemistry and Single Cell Metabolomics." National Institute of General Medical Sciences Maximizing Investigators' Research Award (MIRA, 1R35GM138133-01), 07/01/2020 – 06/30/2025, $1,858,855 (Sole PI, Percent Effort: 51%).
6. "Electrochemical Methodology for Single Molecule Enzymology." National Science Foundation (CHE2003587), 07/01/2020 – 06/30/2023, $462,508 (Sole PI, Percent Effort: 15%).
7. "Molecularly Imprinted Polymer-Modified Microelectrode Arrays for Rapid In-Field Analysis of Trace Illicit Substances in Oral Fluid." (2020-R2-CX-0036). US Department of Justice, 01/21/2021 – 12/31/2024. $150,000 (Sole PI, Percent Effort: 5%).
8. "Photogeneration of Polyaromatic Hydrocarbon Radicals and Reactivity with O_2 and H_2O by Evanescent Wave Scanning Electrochemical Microscopy." Petroleum Research Fund (PRF#61283-DNI4), 07/01/2020 – 08/31/2022, $110,000 (Sole PI, Percent Effort: 5%).
    a. Highest Ranking among DNI4 applications.

9. "Center for Hybrid Approaches in Solar Energy to Liquid Fuels (CHASE)." Department of Energy. 9/15/2020 – 9/14/2025, $40,000,000 (co-PI, lead PI: Prof. Gerald J. Meyer.) Total to my group is $387,500 over 5 years (Percent Effort: 0.5 summer months).

B. Previous Extramural Support

1. "Sensing Per- and Polyfluoroalkyl Substances (PFAS) in Complex Water Matrices using Molecularly-Imprinted Polymer Arrays of Gold Microelectrodes: Deployable Device Development." United States Army Corps of Engineers (W912HZ-19-2-0018-BAA), 07/01/2019 – 06/30/2021, $752,863 (Sole PI, Percent Effort: was 20%)

C. Current Intramural Support

2. "Experiential Learning – Mastering Analytical Chemistry by Doing." UNC Graduate School, 07/01/2019 – 06/30/2022, $25,000 (Lead PI, co-PIs: L. Hicks, M. Schoenfisch, M. Lockett, G. Glish).

VIII. Professional Service

A. Departmental:

Graduate Studies Committee Lead on Admissions and Recruitment	2021 – 2022
Chemistry Liaison to Federal Affairs	2021 – 2022
Faculty Adviser, Student Affiliates of the American Chemical Society	2021 – 2022
Colloquium Committee	2020 – 2022
Faculty Adviser, Graduate Career and Professional Development Committee	2019 – 2022
Graduate Studies Committee	2018 – 2022
Chair/member, Electronics Design Core Committee	2018 – 2021

Preliminary Oral Exam Committees:

Guillermo Colón-Quintana, Member	PI: Dick	April 2022
Thomas Clarke, Member	PI: Dick	April 2022
Philip Kauffmann, Member	PI: Dick	February 2022
Kathryn Vannoy, Member	PI: Dick	April 2021
Rebecca Clark, Member	PI: Dick	February 2021
Nicole Walker, Member	PI: Dick	March 2021
Holly Haflich, Member	PI: Coronell	March 2021
Sondrica Goines, Member	PI: Dick	November 2020
Cameron Worthington, Member	PI: Glish	September 2020
Kyle Nguyen, Chair	PI: Schoenfisch	August 2020
Brittany Huffman, Chair	PI: Dempsey	July 2020
Taron Bradshaw, Chair	PI: Schoenfisch	July 2020
Tayliz Rodriguez, Chair	PI: Dempsey	April 2019
Brian Tran, Chair	PI: Schoenfisch	April 2019
Sarah Maloney, Member	PI: Schoenfisch	April 2018
Olivia Sanchez-Felix, Chair	PI: Ramsey	Oct. 2018

Dissertation Committees:

Matthew Glasscott, Member	PI: Dick	March 2021
James Custer, Member	PI: Cahoon	June 2020
Jackson Hall, Chair	PI: Schoenfisch	November 2019
Maggie Malone-Povolny, Member	PI: Schoenfisch	March 2020

B. National & International:

i. General:

Recognized as one of the top reviewers in *Analytical Chemistry*	May 2021
Representative, Federal Affairs trip to DC to discuss PFAS w/Congress	February 2020
Faculty Advisor, Triangle Student Chapter of the Electrochemical Society	2020 – Present
National Academy of Science Roundtable on Electrochemistry Report	Nov. 2019
Member, Electrochemical Society	2019 – Present
International Advisory Board, Siberian State Medical University	2018 – Present
Lifetime Member, Society for Electronanalytical Chemistry	2018 – Present
Member, American Chemical Society	2017 – Present
NSF ad-hoc reviewer	2017 – Present
Student Editor, Society for Electroanalytical Chemistry	2015 – 2017

ii. Federal Reports:

1. National Academy of Sciences Roundtable: Advances, Challenges, Long-Term Opportunities in Electrochemistry: Addressing Societal Needs *Link*	Nov. 2019
2. National Science Foundation: Reconfigurable Sensor Systems Integrated with Artificial Intelligence and Data Harnessing to Enable Personalized Medicine *Link*	March 2019

iii. Journal Referee (>150 papers as of May 2021): 2015 – Present

Journal of the American Chemical Society, Biosensors & Bioelectronics, Advanced Materials, ACS Nano, Advanced Energy Materials, Chemical Science, Angewandte Chemie International Edition, Nano Letters, Nature Protocols, Analytical Chemistry, Journal of Physical Chemistry Letters, Physical Chemistry Chemical Physics, ACS Applied Energy Materials, ACS Applied Nano Materials, ACS Chemical Neuroscience, Journal of Chemical Education Journal of Physical Chemistry C, Langmuir, Electrochimica Acta, Electrochemistry Communications, Electroanalysis

iv. Editorial Advisory Board Activity:

- *Analyst (July 2022 – July 2025)*
- *Analytical Chemistry (Jan. 2021 – Dec. 2023)*
- *ACS Applied Nano Materials (Jan. 2021 – Dec. 2023)*

v. Grant Review Activity:

Proposal Reviewer, Israeli Science Foundation	May 2021
2021 National Science Foundation Chemistry Division Panel	Spring 2021
Ad-hoc Reviewer for: National Science Foundation, Petroleum Research Fund, US Army Corps of Engineers	2018 – Present