**I. Personal January 2023**

## JEFFREY EDWARD DICK

Department of Chemistry, College of Science

Elmore Family School of Electrical and Computer Engineering, College of Engineering (*by courtesy*)

Purdue University

560 Oval Drive

West Lafayette, Indiana 47907

jdick@purdue.edu

[**Laboratory Website**](http://www.nanoelectrochemistry.com) **|** [**Faculty Page**](https://www.chem.purdue.edu/people/profile/jdick)

**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 Hach Lecture, Colorado State University Apr. 2023
* 2023 Pittcon Achievement Award March 2023
* 2023 Royce W. Murray Young Investigator Award (SEAC & Pittcon) March 2023
* 2023 Editorial Advisory Board Member, *Analyst* Jan. 2023
* 2022 Editorial Advisory Board Member, *ACS Applied Nano Materials* Jan. 2022
* 2022 Editorial Advisory Board Member, *Analytical Chemistry* Jan. 2022
* 2021 Alfred P. Sloan Research Fellow Feb. 2021
* 2021 NSF CAREER Award Jan. 2021
* 2020 NIH NIGMS MIRA R35 Outstanding Investigator Award Sept. 2020
* 2019 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*](https://scholar.google.com/citations?user=6nQvrHoAAAAJ&hl=en)*)*

*A.) Books & Book Chapters*

## Clarke, T. B.; Renault, C.; Dick, J. E.\* Fundamental Electrochemistry, **2023**, *ACS In Focus*, Under Revision.

## 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.

## 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*](https://pubs.rsc.org/en/content/chapter/bk9781788014144-00309/978-1-78801-414-4)

*B.) Patents Filed*

1. Dick, J. E.; Kauffmann, P. J. E-Chem Wand. Provisional patent application.
2. Dick, J. E.; Colon-Quintana, G.; Clarke, T. B. Fluxification: Interfacial Solute Flux Promotes Emulsification at the Water|Oil Interface. Provisional patent application.
3. Dick, J. E.; Vannoy, K. J. Method for Detecting Cocaine from Complex Powders. Provisional patent application.
4. Principle, Method, and Device about the Biosensors Based on dOCP/dt Measurement, Under Review. Co-inventor with Prof. Koji Sode. Non-provisional patent application.

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

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

1. Clarke, T. B.; Colón-Quintana, G.; Dick, J. E.\* Tunable Gold Nanoring Arrays by Electrodeposition, Under Review.
2. Kauffmann, P. J.; Dick, J. E.\* Understanding Analytical Figures of Merit in the Electrochemical Quantification of Aerosol Contents, Under Review.
3. Gupta, V.; Dick, J. E.\* Micro-Aptasensors for Real-Time, Intracellular Antibiotic Quantitation, Under Review.
4. Lim, K.; Goines, S.; McCormick, H.; Deng, M.; Kauffmann, P. J.; Dick, J. E.\* A Beginner’s Guide to Laser-Pulling Platinum Nanoelectrodes, Under Revision.
5. Walker, N. L.; Dick, J. E.\* On the Mechanism of the Bipolar Reference Electrode, Under Revision.
6. Vannoy, K. J.; Renault, C.; Dick, J. E.\* Understanding Complex Water Nanodroplet Current Blockade Transients on Microelectrodes, *Analytical Chemistry*, 2023, Under Review.
7. Renault, C.; Dick, J. E.; Lemay, S. G. Particle Mass Transport in Impact Electrochemistry, *Current Opinion in Electrochemistry*, 2023, Under Review.
8. Voci, S.; Dick, J. E.\* An Electrochemical Perspective on the Width of Liquid|Liquid Phase Boundaries, *Current Opinion in Electrochemistry*, 2023, Under Review.
9. Probst, D.; Lee, I.; Dick, J. E.; Sode, K. Surface Area Independent Response of Closed Bipolar Electrodes, *Sensors and Actuators Reports*, **2023**, Accepted.
10. Colón-Quintana, G.; Clarke, T. B.; Dick, J. E.\* Fluxification: Interfacial Solute Flux Promotes Emulsification at the Water|Oil Interface, *Nature Communications*, **2023**, Accepted.
11. Voci, S.; Clarke, T. B.; Dick, J. E. Abiotic Microcompartments Form when Neighbouring Droplets Fuse: An Electrochemiluminescence Investigation, *Chemical Science*, **2023**, Accepted.
12. Park, N. A.; Glish, G. L.; Dick, J. E.\* Analysis of Liquid Particles in Aerosols via Charge-Induction Amperometry (ALPACA) for Rapid Electrospray Droplet Charge Analysis, **2023**, *Journal of the American Society for Mass Spectrometry*, Accepted.
13. Park, N. A.; Glish, G. L.; Dick, J. E.\* Investigating Electrosprayed Droplets using Particle-into-Liquid Sampling for Nanoliter Electrochemical Reactions (PILSNER), **2023**, *Journal of the American Society for Mass Spectrometry*, Accepted.
14. Colón-Quintana, G.; Vannoy, K. J.; Renault, C.; Voci, S.; Dick, J. E.\* Tuning the Three-Phase Microenvironment Geometry Promotes Phase Formation, *Journal of Physical Chemistry C*, **2022**, 47, 200004 – 200010. [*Link*](https://pubs.acs.org/doi/full/10.1021/acs.jpcc.2c03973)
15. Vannoy, K. J.; Krushinski, L.; Kong, E. F.#; **Dick, J. E.\*** Reagentless Voltammetric Identification of Cocaine from Complex Powders, **2022**, *Analytical Chemistry*, Accepted.
16. 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.
17. Goines, S.; Dick, J. E.\* Investigating the Cytotoxic Redox Mechanism of PFOS within Hep G2 by Hyperspectral Assisted Scanning Electrochemical Microscopy, *Analyst*, **2022**, Accepted.
18. Vannoy, K. J.; **Dick, J. E.\*** The Oxidation of Cysteine by Electrogenerated Hexacyanoferrate (III) in Microliter Droplets, **2022**, *Langmuir*, Accepted.
19. 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.
20. 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*](https://pubs.acs.org/doi/10.1021/acs.analchem.2c00462)
21. Clarke, T. B.; Dick, J. E.\* Preferential Electroreduction at the Oil|Water|Conductor Interface, *Journal of Physical Chemistry Letters*, **2022**, *13*, 3338 – 3341. [*Link*](https://pubs.acs.org/doi/full/10.1021/acs.jpclett.2c00545)
22. Reyes-Morales, J.; Vanderkwaak, B.#; **Dick, J. E.\*** Enabling Practical Nanoparticle Electrodeposition from Aqueous Nanodroplets, *Nanoscale*, **2022**, *14*, 2750 – 2757. [*Link*](https://pubs.rsc.org/en/content/articlelanding/2022/nr/d1nr08045h)[Journal Pages = 8]
23. 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*](https://www.sciencedirect.com/science/article/pii/S0956566321009647)[Journal Pages = 10]
24. Walker, N. L.; **Dick, J. E.\*** Versatile Potentiometric Metabolite Sensing without Dioxygen Interference, *Biosensors and Bioelectronics*, **2022**, *201*, 113888. [*Link*](https://www.sciencedirect.com/science/article/pii/S0956566321009258)[Journal Pages = 8]
25. 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*](https://www.sciencedirect.com/science/article/abs/pii/S1572665721009498)[Journal Pages = 7]
26. 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](https://pubs.acs.org/doi/abs/10.1021/acsmeasuresciau.1c00024)* [Journal Pages = 8]
27. 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*](https://pubs.rsc.org/en/content/articlelanding/2021/ta/d1ta02369a)[Journal Pages = 11]
28. 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](https://pubs.acs.org/doi/abs/10.1021/acs.jchemed.1c00016)* [Journal Pages = 10]
29. Clark, R. B.; **Dick, J. E.\*** Towards Deployable Electrochemical Sensors for Per- and Polyfluoroalkyl Substances (PFAS), *Chemical Communications*, **2021**, 57, 8121 – 8130. [*Link*](https://pubs.rsc.org/en/Content/ArticleLanding/2021/CC/D1CC02641K#!divAbstract) [Journal Pages = 10]
30. 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](https://www.pnas.org/content/118/25/e2025726118)* [Journal Pages = 5]
	* Highlighted in *C&E News*:[*Link*](https://cen.acs.org/analytical-chemistry/microfluidics/Electrochemistry-measures-enzyme-rate-acceleration/99/i23?utm_source=Biological&utm_medium=Biological&utm_campaign=CENRSS)
31. Walker, N. L.; Dick, J. E.\* Leakless, Bipolar Reference Electrodes: Fabrication, Performance, and Miniaturization, *Analytical Chemistry*, **2021**, *93*, 10065 – 10074. [*Link*](https://pubs.acs.org/doi/10.1021/acs.analchem.1c00675) [Journal Pages = 10]
	* ACS Editors’ Choice
32. 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*](https://www.sciencedirect.com/science/article/abs/pii/S157266572100357X)
33. 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*](https://pubs.acs.org/doi/abs/10.1021/acs.analchem.0c05299)[Journal Pages = 7]
34. Vannoy, K. J.; Ryabykh, A.#; Chapoval, A. I.; Dick, J. E.\* Single Enzyme Electroanalysis, *Analyst*, **2021**, 146, 3413 – 3421, Invited. *[Link](https://pubs.rsc.org/en/content/articlelanding/2021/an/d1an00230a%22%20%5Cl%20%22%21divAbstract)* [Journal Pages = 9]
	* Selected as an *Analyst* HOT article
35. 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*](https://www.sciencedirect.com/science/article/abs/pii/S2451910321000491)[Journal Pages = 4]
36. 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*](https://pubs.acs.org/doi/10.1021/acs.langmuir.0c03445)[Journal Pages = 6]
37. Walker, N. L.; Dick, J. E.\* Oxidase-Loaded Hydrogels for Versatile Potentiometric Metabolite Sensing, *Biosensors & Bioelectronics*, **2021**, *178*, 112997. [*Link*](https://www.sciencedirect.com/science/article/abs/pii/S0956566321000336)[Journal Pages = 7]
38. 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*](https://pubs.acs.org/doi/abs/10.1021/acs.analchem.0c04409)[Journal Pages = 9]
39. 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*](https://pubs.acs.org/doi/10.1021/acsnano.0c08406)[Journal Pages = 9]
40. 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*](https://pubs.acs.org/doi/10.1021/acs.analchem.0c04183) [Journal Pages = 7]
41. Clark, R. B.; Dick, J. E.\* Electrochemical Sensing of Perfluorooctanesulfonate (PFOS) using Ambient Oxygen in River Water, *ACS Sensors*, **2020**, *5*, 3591 – 3598. [*Link*](https://pubs.acs.org/doi/10.1021/acssensors.0c01894)[Journal Pages = 8]
	* ACS Editors’ Choice
	* Highlighted in *C&E News*, [*Link*](https://cen.acs.org/analytical-chemistry/chemical-sensing/Polymer-coated-electrode-detects-PFAS/98/i47)
42. 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*](https://www.sciencedirect.com/science/article/abs/pii/S0165993620302661)[Journal Pages = 10]
43. Glasscott, M. W.; Dick, J. E.\* Electrodeposition in Aqueous Nano-Reactors, *Current Opinion in Electrochemistry*, **2020**, 25, 100637, Invited. [*Link*](https://www.sciencedirect.com/science/article/abs/pii/S2451910320301721)[Journal Pages = 6]
44. McCormick, H. K. #; Dick, J. E.\* Nanoelectrochemical Quantification of Single Cell Metabolism, *Analytical and Bioanalytical Chemistry*, **2020**, *413*, 17 – 24. [*Link*](https://link.springer.com/article/10.1007/s00216-020-02899-9#citeas)[Journal Pages = 8]
45. Deng, Z.; Maroun, F.; Dick, J. E.; Renault, C. Detection of Individual Conducting Graphene Nanoplatelet by Electrocatalytic Depression, *Electrochimica Acta*, **2020**, *355*, 136805. [*Link*](https://www.sciencedirect.com/science/article/pii/S0013468620311981)[Journal Pages = 7]
46. 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*](https://pubs.acs.org/doi/abs/10.1021/acs.analchem.0c01565)[Journal Pages = 9]
47. 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*](https://pubs.acs.org/doi/abs/10.1021/acs.langmuir.0c01332)[Journal Pages = 9]
48. Glasscott, M. W.; Dick, J. E.\* Visualizing Phase Boundaries with Electrogenerated Chemiluminescence, *Journal of Physical Chemistry Letters*, **2020**, *11*, 4803 – 4808. [*Link*](https://pubs.acs.org/doi/abs/10.1021/acs.jpclett.0c01207)[Journal Pages = 6]
49. Glasscott, M. W.; Kazemi, R. R.; Vannoy, K. J.; Verber, M. D.; Dick, J. E.\* -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*](https://pubs.acs.org/doi/10.1021/acs.estlett.0c00341)[Journal Pages = 7]
	* ACS Editors’ Choice
50. 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*](https://pubs.acs.org/doi/10.1021/acs.jpcc.0c03518)[Journal Pages = 10]
	* Selected for cover image
51. 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*](https://pubs.acs.org/doi/abs/10.1021/acs.analchem.9b04972)[Journal Pages = 8]
52. 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*](https://pubs.acs.org/doi/abs/10.1021/acs.jchemed.9b00893)[Journal Pages = 6]
53. 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*](http://jes.ecsdl.org/content/167/3/037505.full.pdf%2Bhtml)[Journal Pages = 13]
54. Goines, S.; Dick, J. E.\* Electrochemical Characterization of Nicotinamide Riboside, *ChemElectroChem*, **2019,***6*, 5264 – 5272. [*Link*](https://onlinelibrary.wiley.com/doi/abs/10.1002/celc.201901435)[Journal Pages = 9]
55. 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*](https://www.nature.com/articles/s41467-019-10303-z)[Journal Pages = 8]
	* Editors’ Highlight
56. 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*](https://pubs.acs.org/doi/10.1021/acs.langmuir.9b00541)[Journal Pages = 16]
57. 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*](https://pubs.acs.org/doi/abs/10.1021/acsnano.9b00546)[Journal Pages = 10]
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59. 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*](https://www.sciencedirect.com/science/article/pii/S138824811830290X)[Journal Pages = 5]
60. 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*](https://pubs.acs.org/doi/10.1021/acsanm.8b01308)[Journal Pages = 10]
61. Glasscott, M.; Dick, J. E.\* Direct Electrochemical Observation of Single Cluster Electrocatalysis on Ultramicroelectrodes, *Analytical Chemistry*, **2018**, *90*, 7804 – 7808. [*Link*](https://pubs.acs.org/doi/full/10.1021/acs.analchem.8b02219)[Journal Pages = 5]

*D.) Pre-independent Career*

1. 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*](https://pubs.acs.org/doi/10.1021/acs.analchem.7b03355)
2. 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*](https://pubs.acs.org/doi/10.1021/jacs.7b10646)
3. Percival, S. J.; Dick, J. E.; Bard, A. J. Cathodically Dissolved Platinum Resulting from the O2 and H2O2 Reduction Reactions on Platinum Ultramicroelectrodes, *Analytical Chemistry*, **2017**, *89*, 3087 – 3092. [*Link*](https://pubs.acs.org/doi/abs/10.1021/acs.analchem.6b04832)
4. 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*](https://pubs.acs.org/doi/abs/10.1021/acs.accounts.6b00340)
5. Dick, J. E.\*; Electrochemical Detection of Single Cancerous and Healthy Cell Collisions on a Microelectrode, *Chemical Communications*, **2016**, *52*, 10906 – 10909 . [*Link*](https://pubs.rsc.org/en/content/articlelanding/2016/cc/c6cc04515d#!divAbstract)
6. 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*](https://pubs.acs.org/doi/10.1021/jacs.6b03202)
7. 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*](https://pubs.acs.org/doi/abs/10.1021/acs.analchem.6b01747)
8. 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*](https://onlinelibrary.wiley.com/doi/full/10.1002/elan.201600182)
9. 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*](https://www.pnas.org/content/113/23/6403)
10. 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*](https://pubs.acs.org/doi/full/10.1021/acsnano.5b05554?src=recsys)
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*E. Invited & Named Lectures*

1. October 2022, American University, Washington, DC.
2. September 2022, University of Arkansas, Fayetteville, AR.
3. September 2022, Gordon Research Conference on Electrochemistry, Ventura, CA.
4. August 2022, ACS National Conference, Chicago, IL.
5. April 2022, Auburn University, Auburn, AL.
6. March 2022, The University of Washington, Seattle, WA.
7. March 2022, The University of Akron, Virtual.
8. January 2022, Purdue University, West Lafayette, IN.
9. November 2021, The College of Charleston, Virtual.
10. September 2021, The University of Wyoming, Laramie, WY.
11. September 2021, The University of Michigan, Ann Arbor, MI.
12. April 2021, The Ohio State University, Virtual.
13. April 2021, Brigham Young University, Virtual.
14. March 2021, Youngstown State University, Virtual.
15. March 2021, Waters Symposium with Department of Defense, Virtual.
16. March 2021, Pittsburgh National Conference, Virtual, Sensors for PFAS.
17. March 2021, Pittsburgh National Conference, Virtual, Single Enzyme Electroanalysis.
18. October 2020, Virtual Workshop on High Entropy Alloy and Complex Solid Solution Nanoparticles for Electrocatalysis, Virtual.
19. August 2020, NSF Chemistry Division COVID-19 Projects, Virtual.
20. March 2020, Pittsburgh National Conference, Chicago, IL.
21. January 2020, National Institute of Environmental Health Sciences, Durham, NC.
22. November 2019, National Academies Workshop on Electrochemistry, Washington, DC.
23. November 2019, North Carolina Central University, Durham, NC.
24. August 2019, ACS National Conference, San Diego, CA.
25. 2019, Army Corps of Engineers, Vicksburg, MS.
26. July 2019, Altai State Technical University, Barnaul, RS.
27. June 2019, University of Warwick, Warwick, UK.
28. May 2019, University of Bordeaux, Bordeaux, France.
29. May 2019, University of Paris Diderot #7, Paris, France.
30. May 2019, Centre National de la Recherche Scientifique, Polytechnique, Paris, France.
31. May 2019, International Stress and Behavior Conference, St. Petersburg, Russia.
32. April 2019, North Carolina State University, Raleigh, NC.
33. April 2019, University of Arkansas Medical School, Little Rock, AR.
34. April 2019, Sandia National Laboratories, Albuquerque, NM.
35. March 2019, NSF Workshop: Reconfigurable Sensor Systems Integrated with Artificial Intelligence and Data Harnessing to Enable Personalized Medicine, Alexandria, VA.
36. November 2018, SERMACS, Augusta, GA.
37. October 2018, University of Puerto Rico, San Juan, Puerto Rico.
38. October 2016, Zhejiang Institute of Science and Technology, Hangzhou, China.
39. November 2016, University of Cincinnati, Cincinnati, OH.
40. September 2016 Skolkovo Institute of Science at Technology, Moscow, Russia.
41. June 2016, Ball State University, Muncie, IN.
42. March 2016, Pittsburgh National Conference, Atlanta, GA.
43. 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*

Purdue University

Electrochemistry CHM 696 33 students Fall 2022

UNC Chapel Hill

Electroanalytical Chemistry CHEM 445 18 students Fall 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

Electroanalytical Chemistry CHEM 445 26 students Fall 2018

*B. Current Graduate Students:*

1. Kathryn Vannoy (B.S. William & Mary, 3rd year student)
2. Nicole Walker (B.S. Univ. Illinois Chicago, 3rd year student)
3. Joshua Reyes-Morales (B.S. Univ. Puerto Rico, 3rd year student)
4. Rebecca Clark (B.S. California State University, 3rd year student)
5. Thomas Clarke (B.S. Univ. Notre Dame, 2nd year student)
6. Guillermo Colón (B.S. Univ. Puerto Rico, 2nd year student)
7. Philip Kauffmann (B.S. Cedarville, 2nd year student)
8. Lynn Krushinski (B.S. Towson, 1st year student)
9. 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. Sondrica Goines, Ph.D (former Ph.D student, currently with BMS)
2. Dr. Kasha Lim, Ph.D (former postdoc, current postdoc at UCSB)
3. Dr. Matthew Glasscott, Ph.D (former Ph.D student, currently with U.S. Army Corps of Engineers)
4. Dr. Moinul Choudhury, Ph.D (former postdoc, currently Asst. Prof. at Daffodil University)
5. Dr. Rezvan Kazemi, Ph.D (former postdoc, currently postdoc at UNC-CH)
6. 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*](https://pubs.acs.org/doi/abs/10.1021/acs.analchem.0c05299)
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*](https://pubs.acs.org/doi/abs/10.1021/acs.analchem.9b04972)
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*](https://pubs.acs.org/doi/abs/10.1021/acs.analchem.0c04409)
		+ 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*](https://pubs.acs.org/doi/10.1021/acsnano.0c08406)
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*](https://www.nature.com/articles/s41467-019-10303-z)

*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*](https://gradschool.unc.edu/news/2021/impact/awards.html#Glasscott))
* 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)
2. Alfred P. Sloan Research Fellowship (FG-2021-15486), 09/2021 – 09/2023, **$75,000** (sole-PI).
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).
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**.
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).
6. “Electrochemical Methodology for Single Molecule Enzymology.” National Science Foundation (CHE2003587), 07/01/2020 – 06/30/2023, **$462,508** (Sole PI).
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).

*B. Previous 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%)
2. “Photogeneration of Polyaromatic Hydrocarbon Radicals and Reactivity with O2 and H2O by Evanescent Wave Scanning Electrochemical Microscopy.” Petroleum Research Fund (PRF#61283-DNI4), 07/01/2020 – 08/31/2022, **$110,000** (Sole PI).
	1. Highest Ranking among DNI4 applications.
3. “Center for Hybrid Approaches in Solar Energy to Liquid Fuels (CHASE).” Department of Energy. 9/15/2020 – 7/01/2022, $40,000,000 (co-PI, lead PI: Prof. Gerald J. Meyer.) Total to my group is **$387,500**.
4. “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:*

Purdue

Recruitment Committee 2022 - Present

Admissions Committee 2022 - Present

UNC Chapel Hill

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 2022

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, Nov. 2019

Long-Term Opportunities in Electrochemistry: Addressing Societal Needs [*Link*](https://www.nap.edu/read/25760/chapter/1)

2. National Science Foundation: Reconfigurable Sensor Systems Integrated with March 2019

Artificial Intelligence and Data Harnessing to Enable Personalized Medicine [*Link*](https://assistcenter.org/wp-content/uploads/2019/09/NSFWorkshop_Report-082119-v2.pdf)

iii. Journal Referee (>300 papers as of July 2022): 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, 2018 – Present

US Army Corps of Engineers