

David B. Go
Rooney Family Collegiate Professor and Department Chair
Aerospace and Mechanical Engineering
Chemical and Biomolecular Engineering (concurrent)
University of Notre Dame

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Google Scholar: scholar.google.com/citations?user=cgiUV84AAAAJ
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HIGHLIGHTS

- Published over 80 articles (*h*-index: 30-Google Scholar, 26-ResearcherID), including five invited review or perspective articles, and authored one book; named Royal Chemistry Society highly cited for 2019 (top 5% in citations)
- Hold or submitted 6 patents, with two technologies being successfully licensed.
- Funding by nearly every major federal agency (NSF, NIH, NASA, DOE, AFOSR, ARO, DARPA) totaling ~\$15M as PI or Co-PI
- Graduated ten Ph.D. students as sole advisor (8) or co-advisor (2)
- ASME Fellow, President of Electrostatics Society of America, Associate Editor for *Plasma Sources Science and Technology* (considered top journal in field), Associate Editor for *Frontiers in Mechanical Engineering*, Editorial Board for *Journal of Electrostatics*
- Taught nine different undergraduate and graduate courses, both required and elective, including developing multiple new courses and a new undergraduate curricular stem on mechanical engineering design
- Served as department Director of Graduate studies (2018-2020), leading the Graduate Studies Committee and ushering in a new qualifying exam, modernizing course requirements, implementing annual review process, and initiating new recruiting approaches
- Current Department Chair for a department with 34 tenured/tenure-track faculty, 5 teaching faculty, 5 research faculty, approximately 450 undergraduate students, and 150 graduate students

EDUCATION

2008 Ph.D., Mechanical Engineering, Purdue University
Ion Generation and Ionic Wind Heat Transfer at Millimeter and Micrometer Scales
Advisors: Prof. Timothy S. Fisher, Prof. Suresh V. Garimella

2004 M.S., Aerospace Engineering, University of Cincinnati

2001 B.S., Mechanical Engineering, University of Notre Dame

PROFESSIONAL EXPERIENCE

2020 – pres. Department Chair, Aerospace and Mechanical Engineering, University of Notre Dame

2019 – pres. President, Electrostatics Society of America

2019 – pres. Rooney Family Collegiate Professor, University of Notre Dame

2019 – pres. Professor, Aerospace and Mechanical Engineering, University of Notre Dame

2019 – pres. Concurrent Professor, Chemical and Biomolecular Engineering, University of Notre Dame

2019 – 2020 Faculty Fellow, Kaneb Center for Teaching and Learning, University of Notre Dame

- 2018 – 2020 Director of Graduate Studies, Aerospace and Mechanical Engineering
University of Notre Dame
- 2015 – 2019 Rooney Family Associate Professor of Engineering, University of Notre Dame
- 2015 – 2019 Concurrent Associate Professor, Chemical and Biomolecular Engineering,
University of Notre Dame
- 2015 – 2019 Associate Professor, Aerospace and Mechanical Engineering, University of Notre Dame
- 2013 – 2015 Concurrent Assistant Professor, Chemical and Biomolecular Engineering,
University of Notre Dame
- 2009 – 2015 Assistant Professor, Aerospace and Mechanical Engineering, University of Notre Dame
- 2008 – 2009 Instructor, Aerospace and Mechanical Engineering, University of Notre Dame
- 2004 – 2008 Graduate Research Assistant, School of Mechanical Engineering, Purdue University
- 2007 Research Intern, Mobile Platforms Group, Intel Corporation
- 2001 – 2004 Engineer, Edison Engineering Development Program, General Electric Aircraft Engines

AWARDS AND HONORS

Personal

- Rev. Edmund P. Joyce, C.S.C. Award for Excellence in Undergraduate Teaching, 2019
- Electrostatics Society of America (ESA) Rising Star Award, 2018
- Institute of Electrical and Electronics Engineers (IEEE) Nuclear & Plasma Sciences Society (NPSS) Early Achievement Award, 2018
- Fellow, American Society of Mechanical Engineers (ASME), 2016
- Electrochemical Society Toyota Young Investigator Fellowship, 2015
- National Science Foundation CAREER Award, 2013
- Air Force Office of Scientific Research Young Investigator Research Award, 2010
- James W. and Carolyn L. Taylor MUACC Travel Award, 2009, 2010
- University of Notre Dame Faculty Scholarship Award, 2010

Advisees

- American Vacuum Society John Coburn and Harold Winters Student Award in Plasma Science and Technology, graduate student Hernan Delgado recognized as a *finalist*, 2019
- Department of Energy Rickover Fellowship Program in Nuclear Engineering, awarded to graduate student Daniel Martin, 2019
- Annual Meeting of the Electrostatics Society of America, Best Student Paper – 1st Place, awarded to graduate student Daniel Martin, 2018
- International Conference on Plasma Science (ICOPS), Student Paper Award, awarded to graduate student Xi Tan, 2017
- International Conference on Plasma Science (ICOPS), Student Paper Award – 1st Runner Up, awarded to graduate student Xi Tan, 2016
- Annual Meeting of the Electrostatics Society of America, Best Student Paper – 3rd Place, awarded to graduate student Zeinab Ramshani, 2016
- Annual Meeting of the Electrostatics Society of America, Best Student Paper – 1st Place, awarded to graduate students Michael Johnson and Paul Rumbach, 2015
- American Vacuum Society John Coburn and Harold Winters Student Award in Plasma Science and Technology, awarded to graduate student Paul Rumbach, 2014
- Annual Meeting of the Electrostatics Society of America, Best Student Paper – 1st Place, awarded to graduate students Michael Johnson and Paul Rumbach, 2014
- International Conference on Plasma Science (ICOPS), Student Paper Award – Honorable Mention, awarded to graduate student Michael Johnson, 2014

- NASA Space Technology Research Fellowship, awarded to graduate student John Haase, 2013
- Annual Meeting of the Electrostatics Society of America, Best Student Paper – 1st Place, awarded to graduate student Paul Rumbach, 2013
- Annual Meeting of the Electrostatics Society of America, Best Student Paper – 2nd Place, awarded to graduate student Sajjanish Balagopal, 2011
- Annual Meeting of the Electrostatics Society of America, Best Student Paper – 2nd Place, awarded to graduate student Rakshit Tirumala, 2010

PUBLICATIONS (* indicates Notre Dame graduate student; # indicates undergraduate student)

Journal Articles (refereed)

1. O. K. Jaenicke[#], F. G. Hita Martinez[#], J. Yang*, S.-K. Im, D. B. Go, “Hand-generated piezoelectric mechanical-to-electrical energy conversion plasma,” *Applied Physics Letters*, vol. 117, 093901, 2020. (Editor’s Pick and Featured Article)
2. A. Guajardo-Cuellar, D. B. Go, M. Sen, “Analysis of energy transport behavior and geometric effects in graphene,” *Frontiers of Mechanical Engineering*, vol. 6, art. no. 41, 2020.
3. P. Mehta, P. M. Barboun, Y. Engelmann, D. B. Go, A. Bogaerts, W. F. Schneider, J. C. Hicks, “Plasma-catalytic ammonia synthesis beyond the equilibrium limit,” *ACS Catalysis*, vol. 10, pp. 6726–6734, 2020.
4. N. Turan*, P. M. Barboun, P. K. Nayak[#], J. C. Hicks, D. B. Go, “Development of a small-scale helical surface dielectric barrier discharge for characterizing plasma-surface interfaces,” *Journal of Physics D: Applied Physics*, vol. 29, art. no. 045016, 2020.
5. J. Yang*, S.-K. Im, D. B. Go, “Time-resolved characterization of a free plasma jet formed off the surface of a piezoelectric crystal,” *Plasma Sources Science and Technology*, vol. 29, art. no. 045016, 2020.
6. H. Delgado*, D. T. Elg, D. M. Bartels, P. Rumbach, D. B. Go, “Chemical analysis of secondary electron emission from a water cathode at the interface with a non-thermal plasma,” *Langmuir*, vol. 36, pp. 1156-1164, 2020.
7. Z. Chao, K. B. Sezginel, K. Xu, G. M. Crouch, A. E. Gray, C. E. Wilmer, P. W. Bohn, D. B. Go, S. K. Fullerton-Shirey, “Dynamics of silver nanofilament formation in a polymer-ionic liquid thin-film by direct-write,” *Advanced Functional Materials*, art. no. 1907950, 2019.
8. P. Rumbach, A. E. Lindsay, D. B. Go, “Turing patterns on a plasma-liquid interface,” *Plasma Sources Science and Technology*, vol. 28, art. no. 105014, 2019.
9. Z. Ramshani, C. Zhang, K. Richards, L. Chen, G. Xu, B. L. Stiles, R. Hill, S. Senapati, D. B. Go, H.-C. Chang, “Extracellular vesicle miRNA quantification from plasma using an integrated microfluidic device,” *Communications Biology*, vol. 2, art. no. 189, 2019.
10. P. Barboun, P. Mehta, F. A. Herrera*, D. B. Go, W. F. Schneider, J. C. Hicks, “Distinguishing plasma contributions to catalyst performance in plasma-assisted ammonia synthesis,” *ACS Sustainable Chemistry & Engineering*, vol. 7, pp. 8621-8630, 2019.
11. P. Mehta, P. Barboun, D. B. Go, J. C. Hicks, W. F. Schneider, “Catalysis enabled by plasma activation of strong bonds: a review,” *ACS Energy Letters*, vol. 4, pp. 1115-1133, 2019. (**invited review**)
12. H. E. Delgado*, R. C. Radomsky[#], D. C. Martin*, D. M. Bartels, P. Rumbach, D. B. Go, “Effect of competing oxidizing reactions and transport limitation on the Faradaic efficiency in plasma electrolysis,” *Journal of the Electrochemical Society*, vol. 166, pp. E181E186, 2019.
13. D. Han, G. M. Crouch, Z. Chao, S. K. Fullerton-Shirey, D. B. Go, P. W. Bohn, “Nanopore-templated silver nanoparticle arrays photopolymerized in zero-mode waveguides,” *Frontiers in Chemistry*, vol. 7, art. no. 216, 2019.
14. F. A. Herrera*, G. Brown[#], P. Barboun, N. Turan*, P. Mehta, W. F. Schneider, J. C. Hicks, D. B. Go, “The impact of transition metal catalysts on macroscopic dielectric barrier discharge (DBD)

- characteristics in an ammonia synthesis plasma catalysis reactor,” *Journal of Physics D: Applied Physics*, vol. 52, art. no. 224002, 2019. **(special issue)**
15. X. Tan*, D. B. Go, “Rational design of plasma-enhanced catalysis at microscale dimensions for the dissociation of CO₂,” *Journal of Electrostatics*, vol. 97, pp. 71-74, 2019.
 16. P. Rumbach, D. M. Bartels, D. B. Go, “The penetration and concentration of free radicals at a plasma-liquid interface,” *Plasma Sources Science and Technology*, vol. 27, art. no. 115013, 2018.
 17. Z. Chao, B. P. Radka, K. Xu, G. M. Crouch, D. Han, D. B. Go, P. W. Bohn, S. K. Fullerton-Shirey, “Direct-write formation and dissolution of silver nanofilaments in ionic liquid-polymer electrolyte composites,” *Small*, vol. 14, art. no. 1802023, 2018.
 18. H. Peng, M. Ghasri-Khouzani, S. Gong, R. Attardo, P. Ostiguy, B. A. Gatrell, J. Budzinski, C. Tomonto, J. Neidig, M. Ravi Shankar, R. Billo, D. B. Go, D. Hoelzle, “Fast prediction of thermal distortion in metal powder bed fusion additive manufacturing: Part 2, a quasi-static thermo-mechanical model,” *Additive Manufacturing*, vol. 22, pp. 869-882, 2018.
 19. H. Peng, M. Ghasri-Khouzani, S. Gong, R. Attardo, P. Ostiguy, B. A. Gatrell, J. Budzinski, C. Tomonto, J. Neidig, M. Ravi Shankar, R. Billo, D. B. Go, D. Hoelzle, “Fast prediction of thermal distortion in metal powder bed fusion additive manufacturing: Part 1, a thermal circuit network model,” *Additive Manufacturing*, vol. 22, pp. 852-868, 2018.
 20. S. Marczak, K. Richards, Z. Ramshani, E. Smith, S. Senapati, R. Hill, D. B. Go, H.-C. Chang, “Simultaneous isolation and preconcentration of exosomes by ion concentration polarization,” *Electrophoresis*, vol. 39, pp. 2029-2038, 2018.
 21. P. Mehta, P. Barboun, F. A. Herrera*, J. Kim, P. Rumbach, D. B. Go, J. C. Hicks, W. F. Schneider, “Overcoming ammonia synthesis scaling relations with plasma-enabled catalysis,” *Nature Catalysis*, vol. 1, pp. 269-275, 2018.
 22. X. Tan*, D. B. Go, “Understanding the scaling of electron kinetics in the transition from collisional to collisionless conditions in microscale gas discharges,” *Journal of Applied Physics*, vol. 123, art. no. 063303, 2018.
 23. H. E. Delgado*, P. Rumbach, D. M. Bartels, D. B. Go, “Total internal reflection absorption spectroscopy (TIRAS) for the detection of solvated electrons at a plasma-liquid interface,” *Journal of Visualized Experiments*, vol. 131, art. no. e56833, 2018.
 24. D. B. Go, J. R. Haase*, J. George, J. Mannert, A. Nojeh, R. Nemenich, “Thermionic energy conversion in the 21st century: Advances and opportunities for space and terrestrial applications,” *Frontiers in Mechanical Engineering*, vol. 3, art. no. 13, 2017.
 25. S. Ghosh, R. Hawtof, P. Rumbach, D. B. Go, R. Akolkar, R. M. Sankaran, “Quantitative study of electrochemical reduction of Ag⁺ to Ag nanoparticles in aqueous solutions by a plasma cathode,” *Journal of the Electrochemical Society*, vol. 64, pp. D818-D824, 2017.
 26. M. J. Johnson, D. B. Go, “Recent advances in electrohydrodynamic pumps operated by ionic winds: A review,” *Plasma Sources Science and Technology*, vol. 26, art. no. 103002, 2017. **(invited review)**
 27. K. Yoshida, M. J. Johnson*, D. B. Go, “Thin air jet synthesized with ring-shaped DBD and sliding discharge: Measurement of flow velocities, flow rates, and stream diameters,” *Journal of Electrostatics*, vol. 87, pp. 293-301, 2017.
 28. P. Rumbach, D. B. Go, “Perspectives on plasmas in contact with liquids and its relationship to electrocatalysis for chemical processing and materials synthesis,” *Topics in Catalysis*, vol. 60, pp. 799-811, 2017. **(invited)**
 29. D. B. Go, M. Z. Atashbar, Z. Ramshani, H.-C. Chang, “Surface acoustic wave devices for chemical sensing and microfluidics: a review and perspective,” *Analytical Methods*, vol. 9, pp. 4112-4134, 2017. **(invited review)**
 30. P. Rumbach, J.-P. Clarke[#], D. B. Go, “Electrostatic Debye layer formed at a plasma-liquid interface,” *Physical Review E*, vol. 95, art. no. 053203, 2017.

31. G. M. Crouch*, D. Han, S. K. Fullerton-Shirey, D. B. Go, P. W. Bohn, "Addressable direct-write nanoscale filament formation and dissolution by nanoparticle-mediated bipolar electrochemistry," *ACS Nano*, vol. 11, pp. 4976-4984, 2017.
32. J. Kim, D. B. Go, J. C. Hicks, "Synergistic effects of plasma-catalyst interactions for CH₄ activation," *Physical Chemistry Chemical Physics*, vol. 19, pp. 13010-13021, 2017.
33. F. Herrera*, T. Luo, D. B. Go, "Thermal rectification under transient conditions: The role of thermal capacitance and thermal conductivity," *Journal of Heat Transfer*, vol. 139, art. no. 091301, 2017.
34. R. J. Flaherty*, S. A. Sarver, L. Sun, G. Brownell, D. B. Go, N. J. Dovichi, "A high voltage power supply that mitigates current reversals in capillary zone electrophoresis-electrospray mass spectrometry," *Journal of American Society of Mass Spectrometry*, vol. 28, pp. 247-252, 2017.
35. X. Tan*, N. Griggs[#], K. L. Jensen, D. B. Go, "Theoretical analysis of 1D resonant tunneling behavior in ion-enhanced cold field and thermo-field emission," *Journal of Applied Physics*, vol. 120, art. no. 213301, 2016.
36. M. J. Johnson*, D. B. Go, "Impingement cooling using the ionic wind generated by a low-voltage piezoelectric transformer," *Frontiers in Mechanical Engineering*, vol. 2, art. no. 7, 2016.
37. P. Rumbach*, R. Xu, D. B. Go, "Electrochemical production of oxalate and formate from CO₂ by solvated electrons produced using an atmospheric-pressure plasma," *Journal of the Electrochemical Society*, vol. 163, pp. F1157-F1161, 2016.
38. Z. Ramshani*, M. J. Johnson*, M. Atashbar, D. B. Go, "A broad area electrospray actuated by a piezoelectric transformer," *Applied Physics Letters*, vol. 109, art. no. 044103, 2016.
39. X. Mu*, Z. Song, Y. Wang, Z. Xu, D. B. Go, T. Luo, "Thermal transport in oxidized polycrystalline graphene," *Carbon*, vol. 108, pp. 318-326, 2016.
40. M. A. Bilici, J. R. Haase*, C. Boyle, D. B. Go, R. M. Sankaran, "Experimental evidence for the transition from a field emission-driven Townsend discharge to a self-sustained microplasma," *Journal of Applied Physics*, vol. 119, art. no. 223301, 2016.
41. J. Kim, M. S. Abbott, D. B. Go, J. C. Hicks, "Enhancing C-H bond activation of methane via temperature-controlled, catalyst-plasma interactions," *ACS Energy Letters*, vol. 1, pp. 94-99, 2016.
42. T. Jiang, X. Zhang, S. Vishwanath, X. Mu*, V. Kanzyuba, D. Sokolov, S. Ptasinka, D. B. Go, H. Xing, T. Luo, "Covalent bonding modulated graphene-metal interfacial thermal transport," *Nanoscale*, vol. 8, pp. 10993-11001, 2016.
43. J. R. Haase*, D. B. Go, "Analysis of thermionic and thermo-field emission in microscale gas discharges," *Journal of Physics D: Applied Physics*, vol. 49, art. no. 055206, 2016.
44. M. J. Johnson*, D. B. Go, "Piezoelectric transformers for low-voltage generation of gas discharges and ionic winds in atmospheric air," *Journal of Applied Physics*, vol. 118, art. no. 2343304, 2015.
45. P. Rumbach*, D. M. Bartels, R. M. Sankaran, D. B. Go, "The effect of air on solvated electron chemistry at a plasma/liquid interface," *Journal of Physics D: Applied Physics*, vol. 48, art. no. 424001, 2015. **(invited)**
46. P. Rumbach*, D. M. Bartels, R. M. Sankaran, D. B. Go, "The solvation of electrons by an atmospheric pressure plasma," *Nature Communications*, vol. 6, art. no. 7248, 2015.
47. D. Taller*, K. Richards*, Z. Slouka, S. Senapati, R. Hill, D. B. Go, H.-C. Chang, "On-chip surface acoustic wave lysis and ion-exchange nanomembrane detection of exosomal RNA for pancreatic cancer study and diagnosis," *Lab on a Chip*, vol. 15, pp. 1656-1666, 2015. **(cover article)**
48. M. J. Johnson*, R. Tirumala*, D. B. Go, "Analysis of geometric scaling of miniature multi-electrode assisted corona discharges for ionic wind generation," *Journal of Electrostatics*, vol. 74, pp. 8-14, 2015.
49. M. J. Johnson*, D. B. Go, "Ferroelectric crystals for the low-voltage operation of surface dielectric barrier discharges," *Applied Physics Letters*, vol. 105, art. no. 264102, 2014.
50. X. Mu*, T. Zhang*, D. B. Go, T. Luo, "Coherent and incoherent phonon thermal transport in isotopically modified graphene superlattices," *Carbon*, vol. 83, pp. 208-216, 2014.

51. D. B. Go, A. Venkatraman, "Microscale gas breakdown: ion-enhanced field emission and the modified Paschen's curve," *Journal of Physics D: Applied Physics*, vol. 47, art. no. 503001, 2014. **(invited review)**
52. P. Rumbach*, N. Griggs[#], R. M. Sankaran, D. B. Go, "Visualization of electrolytic reactions at a plasma-liquid interface," *IEEE Transactions on Plasma Science*, vol. 42, pp. 2610-2611, 2014.
53. P. Rumbach*, Y. Li*, S. Martinez[#], T. J. Twahirwa[#], D. B. Go, "Experimental study of electron impact ionization in field emission-driven microdischarges" *Plasma Sources Science and Technology*, vol. 23, art. no. 065026, 2014.
54. Y. Li*, D. B. Go, "The quantum mechanics of ion-enhanced field emission and how it influences microscale gas breakdown," *Journal of Applied Physics*, vol. 116, art. no. 103306, 2014.
55. M. J. Johnson*, J. Linczer[#], D. B. Go, "Thermally induced atmospheric pressure gas discharges using pyroelectric crystals," *Plasma Sources Science and Technology*, vol. 23, art. no. 065018, 2014.
56. S. A. Sarver*, N. Chetwani, N. J. Dovichi, D. B. Go, C. A. Gartner, "A comparison of AC and DC electrospray ionization for mass spectrometry," *The Journal of the American Society of Mass Spectrometry*, vol. 25, pp. 524-529, 2014.
57. X. Mu*, X. Wu*, T. Zhang*, D. B. Go, T. Luo, "Thermal transport in graphene oxide – From ballistic extreme to amorphous limit," *Scientific Reports*, vol. 4, art. no. 3909, 2014.
58. R. Tirumala*, D. B. Go, "Comparative study of corona discharge simulation techniques for electrode configurations inducing non-uniform electric fields," *Journal of Electrostatics*, vol. 72, pp. 99-106, 2014.
59. Y. Li*, D. B. Go, "Using field emission to control the electron energy distribution in high-pressure microdischarges at microscale dimensions," *Applied Physics Letters*, vol. 103, art. no. 234104, 2013.
60. J. Z. Woodruff[#], A. P. C. Buccellato, P. Brenner, D. B. Go, "Environmentally Opportunistic Computing: A distributed waste heat reutilization approach to energy-efficient buildings and data centers," *Energy and Buildings*, vol. 69, pp. 41-50, 2013.
61. P. Rumbach*, M. Witzke, R. M. Sankaran, D. B. Go, "Decoupling interfacial reactions between plasmas and liquids: Charge transfer vs. plasma neutral reactions," *Journal of the American Chemical Society*, vol. 135, pp. 16264-16267, 2013.
62. D. Taller*, D. B. Go, H.-C. Chang, "Modulated exponential films generated by surface acoustic waves and their role in liquid wicking and aerosolization at a pinned drop," *Physical Review E*, vol. 87, art. no. 053004, 2013.
63. Y. Li*, R. Tirumala*, P. Rumbach*, D. B. Go, "The coupling of ion-enhanced field emission and the discharge during microscale breakdown at moderately high pressures," *IEEE Transactions on Plasma Science*, vol. 41, pp. 24-35, 2013.
64. D. B. Go, "Theoretical analysis of ion-enhanced thermionic emission for low-temperature, non-equilibrium gas discharges," *Journal of Physics D: Applied Physics*, vol. 46, art. no. 035202, 2013.
65. D. Taller*, D. B. Go, H.-C. Chang, "Self-similar micro and nanodrops generated by acoustic and Maxwell pressures of scattered and transmitted surface acoustic waves," *Physical Review Letters*, vol. 109, art. no. 224301, 2012.
66. P. Rumbach*, D. B. Go, "Fundamental properties of field emission-driven DC microdischarges," *Journal of Applied Physics*, vol. 112, art. no. 103302, 2012.
67. M. Witzke, P. Rumbach*, D. B. Go, R. M. Sankaran, "Evidence for the electrolysis of water by plasmas formed at the surface of aqueous solutions," *Journal of Physics D: Applied Physics*, vol. 45, art. no. 442001, 2012.
68. Y. Wang*, M. K. Tan, D. B. Go, H.-C. Chang, "Electrospray cone-jet breakup and droplet production for electrolyte solutions," *Europhysics Letters*, vol. 99, art. no. 64003, 2012. **Editor's Choice**

69. R. Tirumala*, D. B. Go, “The multi-electrode assisted corona discharge for electrohydrodynamic flow generation in narrow channels,” *IEEE Transactions on Dielectrics and Electrical Insulation*, vol. 18, pp. 1854-1863, 2011.
70. J. Ho, M. K. Tan, D. B. Go, L. Y. Yeo, J. R. Friend, H.-C. Chang, “A paper-based microfluidic surface acoustic wave sample delivery and ionization source for rapid and sensitive ambient mass spectrometry,” *Analytical Chemistry*, vol. 83, pp. 3260-3266, 2011. (Accelerated Article)
71. N. Chetwani*, C. A. Cassou[#], D. B. Go, H.-C. Chang, “Frequency dependence of AC electrospray ionization mass spectrometry,” *Analytical Chemistry*, vol. 83, pp. 3017-3023, 2011.
72. R. Tirumala*, Y. Li*, D. A. Pohlman[#], D. B. Go “Corona discharges in sub-millimeter electrode gaps,” *Journal of Electrostatics*, vol. 69, pp. 36-42, 2011.
73. R. Tirumala*, D. B. Go, “An analytical formulation for the modified Paschen’s curve,” *Applied Physics Letters*, vol. 97, art. no. 151502, 2010.
74. N. Chetwani*, C. A. Cassou[#], D. B. Go, H.-C. Chang, “High-frequency AC electrospray ionization source for mass spectrometry,” *Journal of the American Society of Mass Spectrometry*, vol. 21, pp. 1852-1856, 2010.
75. D. B. Go, M. Sen, “Thermal rectification using bulk materials,” *Journal of Heat Transfer*, vol. 132, art. no. 124502, 2010.
76. D. B. Go, D. A. Pohlman[#], “A mathematical model of the modified Paschen’s curve for breakdown in microscale gaps,” *Journal of Applied Physics*, vol. 107, art. no. 103303, 2010.
77. A. Guajardo-Cuellar*, D. B. Go, M. Sen, “Evaluation of heat current formulations for equilibrium molecular dynamics calculations of thermal conductivity,” *Journal of Chemical Physics*, vol. 132, art. no. 104111, 2010.
78. D. B. Go, T. S. Fisher, S. V. Garimella, V. B. Bahadur, “Planar microscale ion generation devices in atmospheric air with diamond-based electrodes,” *Plasma Sources Science and Technology*, vol. 18, art. no. 035004, 2009.
79. D. B. Go, T. S. Fisher, S. V. Garimella, “Direct simulation of ionization and ion transport for planar microscale ion generation devices,” *Journal of Physics D: Applied Physics*, vol. 42, art. no. 055203, 2009.
80. D. B. Go, R. A. Maturana, T. S. Fisher, S. V. Garimella, “Enhancement of external forced convection by ionic wind,” *International Journal of Heat Mass and Transfer*, vol. 51, pp. 6047-6053, 2008.
81. D. B. Go, S. V. Garimella, T. S. Fisher, R. K. Mongia, “Ionic winds for locally enhanced cooling,” *Journal of Applied Physics*, vol. 102, art. no. 053302, 2007.
 - also in *Virtual Journal of Nanoscale Science and Technology*, vol. 16, no. 14, 2007.

Book

1. D. B. Go, *Ionization and Ion Transport: A primer for the study of non-equilibrium, low-temperature gas discharges and plasmas*, Morgan & Claypool Publishers: San Rafael, CA, 2018. (ISBN 978-1-6817-4601-2)

Book Chapters (invited)

1. K. E. Richards, D. B. Go, R. Hill, “Surface Acoustic Wave Lysis and Ion-Exchange Membrane Quantification of Exosomal MicroRNA,” in *MicroRNA Detection and Target Identification: Methods and Protocols* (ed. T. Dalmay), *Methods in Molecular Biology* (vol. 1580), pp. 59-70, Springer: New York, 2017.
2. P. Brenner, D. Thain, A. P. C. Buccellato, D. B. Go “Environmentally Opportunistic Computing,” in *Handbook of Energy-Aware and Green Computing* (ed. I. Ahmad, S. Ranka), CRC Press: New York, NY, 2012.

Magazine Articles (invited)

1. R. Tirumala*, D. B. Go, “Ionic Winds: A New Frontier for Air Cooling,” *Electronics Cooling*, pp. 8-11, March 2012.

Intellectual Property

Patents

1. G. Brownell, D. B. Go, N. Dovichi, R. Flaherty, S. Sarver “CE Electrospray Distal-End Power Supply,” PCT Application No. PCT/US2017/053520, U.S. Utility Patent 15/716,149 filed 09/26/2017. (U.S. Provisional Application No. 62/400,036, filed 09/26/2016)
 - licensed to CMP Scientific, 03/25/2019
2. H.-C. Chang, D. B. Go, Z. Slouka, S. Senapati, Y. Men “AC Electrosprayed Droplets for Digital and Emulsion PCR,” PCT Application No. PCT/US2017/031715, filed 05/09/2017. (U.S. Provisional Application No. 62/342,219, filed 05/28/2016)
3. D. B. Go, Z. Ramshani*, M. J. Johnson*, M. Z. Atashbar “Piezoelectric Transformer-Driven Electrospray Device,” PCT Application No. PCT/US2017/26639, filed 04/07/2017. (U.S. Provisional Patent 62/319,775, filed 04/07/2016)
4. N. Chetwani, C. A. Cassou[#], D. B. Go, H.-C. Chang, “Methods and Apparatus for Mass Spectrometry Utilizing an AC Electrospray Device,” U.S. Patent 8,716,675, filed 04/27/2011 (application 13/095,288), issued 05/06/2014.
5. M. MacDonald, R. K. Mongia, D. B. Go “Flow Tube Apparatus,” U.S. Patent 8,274,228, filed 12/24/2009 (application 12/647,331), issued 09/25/2012.
6. T. S. Fisher, S. V. Garimella, D. B. Go, R. K. Mongia “Various Methods, Apparatuses, and Systems that Use Ionic Wind to Affect Heat Transfer,” U.S. Patent 7,545,640, filed 02/16/2007 (application 11/676,194), issued 06/09/2009.

Invention Disclosures

1. D. Hoelzle, H Peng, D. B. Go, R. Billo, J. Neidig, J. Budzinski, M.R. Shankar, P. Ostiguy, R. Attardo, S. Gong, B. A. Gatrell, C. Tomonto, “Thermal Stress, Thermal Distortion, and Design Optimization for the Direct Metal Laser Sintering Process,” Notre Dame Technology I.D. 16-067, filed 06/16/2016.
 - licensed to Indiana Technology and Manufacturing Companies (ITAMCO) and formed basis for Atlas3D start-up in 2018 (<https://atlas3d.xyz/>), sold to Siemens 2019
 - nominated for 2019 1st Source Bank Commercialization Award

Invited/Keynote Conference and Workshop Presentations

1. D. B. Go, “Understanding and Designing Plasma-Catalysis Systems using Experiments and Simulations,” AVS International Symposium and Exhibition, Denver, CO, 2020. – *canceled due to COVID-19 pandemic*
2. D. B. Go, “The Mutual Roles of the Plasma and Liquid in Plasma Electrolysis,” ECS Meeting, Montreal, Canada, 2020. – *canceled due to COVID-19 pandemic*
3. D. B. Go, F. Herrera, G. Brown, N. Turan, P. Barboun, P. Mehta, W. F. Schneider, J. C. Hicks, “Comprehensive Studies Toward Understanding and Designing Plasma-Catalysis Systems,” American Chemical Society National Meeting & Expo, Philadelphia, PA, 2020. – *canceled due to COVID-19 pandemic*
4. D. B. Go, “Interfacial low-temperature plasmas for directing chemistry: Perspectives from plasma-liquids and plasma-catalysis,” Advances and Applications in Plasma Physics (*Nature Conference Series*), St. Petersburg, Russia, 2019.
5. D. B. Go, “Solvated electrons at a plasma-liquid interface,” International Conference on Phenomena in Ionized Gases, Sapporo, Japan, 2019.

6. D. B. Go, "Rethinking the Design of Catalysts for Plasma-Catalysis Systems", International Symposium on Plasma Chemistry, Naples, Italy, 2019.
7. D. B. Go, "Field Emission and its Effect on Microdischarge Formation," Gaseous Electronics Conference, Pittsburgh, PA, 2017.
8. D. B. Go, "The Role of Field Emission on Plasma Formation at Microscale Dimensions," International Vacuum Nanoelectronics Conference, Regensburg, Germany, 2017.
9. D. B. Go "The Plasma-Catalyst Interaction: Exploring Synergistic Effects at High Temperature," International Symposium on Plasma Nanoscience, Antwerp, Belgium, 2017.
10. D. B. Go, "Electrolysis with Plasma Cathodes: Modeling and Experiments to Understand the Electrochemical Interface", ECS Meeting, New Orleans, LA, 2017.
11. D. B. Go, "Plasma Electrochemistry: Experiments and Modelling of the Plasma/Liquid Interface," International Conference on Plasmas with Liquids, Prague, Czech Republic, 2017.
12. D. B. Go, "On the Role of Field Emission in Atmospheric-Pressure Microscale Plasmas," International Vacuum Nanoelectronics Conference, Vancouver, Canada, 2016.
13. D. B. Go, "Solvated Electron Chemistry at the Plasma-Liquid Interface: Detection and Application to Chemical Processing", International Symposium on Plasmas for Catalysis and Energy Materials, Tianjin, China, 2016.
14. P. Rumbach, R. Xu, D. B. Go, "Electrochemical Reduction of $\text{CO}_{2(\text{aq})}$ By Solvated Electrons at a Plasma-Liquid Interface," ECS Meeting, San Diego, CA, 2016.
15. D. B. Go, "Plasmas with Liquid Electrodes: Fundamental Processes and Applications to Chemical Processing", International Conference on Plasma-Nano Technology and Science, Nagoya, Japan, 2016.
16. D. B. Go, "Understanding Charge Transfer Reactions at the Interface of Plasmas in Contact with Liquids," International Conference on Reactive Plasmas/Gaseous Electronics Conference, Honolulu, HI, 2015.
17. D. B. Go, "A Microfluidic Approach to Exosomal RNA Analysis Using Surface Acoustic Wave Lysing and Ion-Exchange Membrane Sensing," Advances in Microfluidics and Nanofluidics, Beijing, China, 2015.
18. D. B. Go, "Atmospheric-Pressure Plasmas: a Radiation-Free Approach to Solvated Electrons," International Workshop on Microplasmas, Newark, NJ, 2015.
19. D. B. Go, "Atmospheric-Pressure Ionization Processes: New Approaches and Applications," International Conference on Electrostatics, Southampton, England, 2015.
20. D. B. Go, P. Rumbach*, D. M. Bartels, R. M. Sankaran, "Detection of Solvated Electrons at a Plasma-Liquid Interface," Gaseous Electronics Conference, Raleigh, NC, 2014.
21. D. B. Go, "Surface Acoustic Wave Microfluidics for Chemical Analysis," Advanced Diagnostics and Therapeutics Annual Symposium, Notre Dame, IN, 2014.
22. D. B. Go, "Microplasmas for Enhanced Thermionic Emission," NASA Workshop on Thermionic Energy Conversion for Space and Earth, Houston, TX, 2014.
23. D. B. Go, "Electron-Initiated Reactions at the Interface of Plasmas and Liquids," International Symposium on Plasma Nanoscience, Málaga, Spain, 2014.
24. D. B. Go "Generating Dielectric Barrier-like Discharges using Polar, Non-Centrosymmetric Crystals," Gordon Research Conference on Plasma Processing Science, Smithfield, RI, 2014.
25. D. B. Go, "Ion-Enhanced Field Emission for Control of Atmospheric Pressure Discharges" AFOSR Young Investigator Research Program, Arlington, VA, 2014.
26. Y. Li, P. Rumbach, D. B. Go, "Field Emission in Microscale Dimensions: A New Approach to Atmospheric Pressure Gas Discharges," AVS International Symposium and Exhibition, Long Beach, CA, 2013.
27. D. B. Go, "Using Surface Processes to Control Electron Energies in Discharges," International Symposium on Plasma Nanoscience, Asilomar, CA, 2013.

28. D. B. Go, "Microplasmas: A New Tool for Nanomaterial Synthesis and New Application for Nanomaterials," CMOS Emerging Technologies Research Symposium, Whistler, BC Canada, 2013.
29. D. B. Go, "Controlling Microdischarge Electron Energy Distributions with Surface Emission Processes," Workshop on Optical Properties of Plasma, University of Notre Dame, IN, 2013.
30. D. B. Go, "Paper-SAW Mass Spectrometry: The Fundamentals of Surface Acoustic Wave Nebulization using Paper Sample Delivery for Ambient Mass Spectrometry" SCIX Conference (The Federation of Analytical Chemistry and Spectroscopy Societies), Kansas City, MO, 2012.
31. D. B. Go, "Direct Current and Alternating Current Electrospays: The Application of Electrostatics to Chemical Analysis," Annual Meeting of the Electrostatics Society of America, Cambridge, Canada, 2012.
32. D. B. Go, "Breakdown in Microscale Electrode Gaps: The Role of Ion-Enhanced Field Emission in the Modified Paschen's Curve," International Workshop on the Physics of Complex Plasmas, Potsdam, Germany, 2011.
33. D. B. Go, "Low-Temperature Plasma Research in the Small Scale Transport Research Lab", United States Microplasma Research Community Meeting, Jersey City, NJ, 2011.

RESEARCH SUPPORT

Active External Grants

1. "Electric Field Measurements at the Surface of a Piezoelectric Transformer for Plasma Jet Formation using the Plasma Research Facility at Sandia National Laboratory," DOE Opportunities in Frontier Plasma Science, PI, \$30,588, 1.0 years, 09/01/2020-08/31/2021
2. "Optimizing Additive Manufacturing of Thermoelectric Materials using Bayesian Optimization-Enhanced Artificial Intelligence," DE-EE0009103/0000, DOE EERE Advanced Manufacturing, Co-PI (Prof. Tengfei Luo, PI, Prof. Yanliang Zhang, Prof. Alex Dowling, University of Notre Dame, Michael D. McMurtrey, Idaho National Lab), \$2,000,000, 3 years, 09/01/2020-08/31/2023
3. "Additive Manufacturing of Reinforced Concrete Structures with Integrated Energy Efficiency," DE-EE0009070/BASE, DOE EERE ABC, Co-PI (Prof. Ashley Thrall, PI, University of Notre Dame, Eric Kreiger, Brandy Diggs-McGeer, ARL), \$500,000, 3 years, 07/01/2020-06/30/2023
4. "Process Intensification by One-Step, Plasma-Assisted Catalytic Synthesis of Liquid Chemicals from Light Hydrocarbons," DE-FE0031862, DOE NETL, Co-PI (w/ Prof. Jason Hicks, PI, Prof. William Schneider, Prof. Casey O'Brien, University of Notre Dame), \$999,954, 3 years, 03/01/2020 - 02/28/2023
5. "Electric Field Measurements at the Surface of a Piezoelectric Transformer for Plasma Jet Formation," 2020F0015, DOE/SNL Plasma Facility, PI (w/ Prof. Seung-kyun Im, Korea University, 4 weeks facility time, 1 year, 2/10/2020 – 2/10/2021
6. "High-Throughput Electrokinetic Fractionation and Analysis of Extracellular (ex)RNA Nano-carriers," 1 UG3 CA241684-01, NIH UG3/UH3 18027, Co-PI (w/ Prof. Hsueh-Chia Chang, Prof. Satyajyoti Senapati, Prof. Crislyn D'Souza-Schorey, University of Notre Dame), \$927,000, 2 years, 07/30/2019-07/29/2021
7. "Energy Harvesting Approaches to Low-Temperature Plasma Generation for Field Applications," PHY-1804091, NSF/DOE Partnership in Basic Plasma Science and Engineering, PI (w/ Prof. Seung-kyun Im, University of Notre Dame), \$274,093, 3 years, 09/01/2018-08/31/2021
8. "Plasma-Enhanced Catalysis: A Detailed Study of Surface Interactions Between Low-Temperature Plasma and Catalytic Materials," FA9550-18-1-0157, AFOSR BAA, PI (w/ Prof. Jason Hicks, Prof. William Schneider, University of Notre Dame), \$622,205, 3 years, 02/15/2018-02/14/2021
9. "Plasma-Induced Electrochemistry: Understanding the Behavior of Electrons at a Plasma-Liquid Interface," W911NF-17-1-0119, ARO BAA, PI (w/ Dr. Paul Rumbach, Prof. David Bartels, University of Notre Dame, Prof. R. Mohan Sankaran, Case Western Reserve University), \$450,572, 3 years, 05/01/2017-04/30/2021

Active Internal Grants

None

Completed External Grants

1. “High Temperature Gas Pressure Forming and Simulation (TMP R3-3),” LIFT (ALMMII), Co-PI (w/ Martin Philo, GKN Aerospace (PI) + 8 others from GKN Aerospace, Interlaken, American Axle, University of Michigan), \$1,671,000 (Notre Dame: \$284,000), 1.5 years, 08/07/2017-01/20/2019
 - **Extension 1:** Notre Dame: \$62,345, 11/01/2018-09/30/2019
 - **Extension 2:** Notre Dame: \$12,689, 09/30/2019-12/31/2019
 - **Extension 3:** Notre Dame: \$7,402, 01/01/2020-02/19/2020
2. “Holographic Assembly of Reconfigurable Nanoscale Plasmonic and Photonic Elements,” DARPA A2P, Co-PI (w/ Prof. Paul Bohn (PI) and 4 colleagues, University of Notre Dame), \$900,000, 3 years, 05/01/2015-04/30/2018
 - **Extension:** FA8650-15-C-7546-P00005, \$100,000, 1 year, 08/30/2018-09/30/2019
3. “Fourier Transform Infrared Spectroscopy System for the in situ Measurement of Plasma-Catalyst Interactions for Enhanced Reaction Control,” FA9550-17-1-0376, DoD DURIP, Co-PI (w/ Prof. Jason Hicks, University of Notre Dame), \$131,753, 1 year, 09/30/2017-09/29/2018
4. “CAREER: Low Temperature Microplasmas For Thermal Energy Conversion, Education, and Outreach,” PHY-1254273, NSF/DOE Partnership in Basic Plasma Science and Engineering and CBET Combustion, Fire, and Plasma Processes, PI, \$400,000, 5 years, 05/01/2013-04/31/2018
5. “An Integrated Microfluidics Platform for Rapid and Sensitive Detection Exosome RNA Analysis,” HG009010-01, NIH Parent R21, Co-I (w/ Prof. Hsueh-Chia Chang, Prof. Reginald Hill, Dr. Satyajyoti Senapati, University of Notre Dame), \$414,960, 2 years, 09/14/2016-07/31/2018
6. “A Tunable Laser System for Interfacial Electron Transfer Measurements in Reactive Gas/Liquid Systems” W911NF-17-1-0206, DoD DURIP, PI (w/ Prof. David Bartels, University of Notre Dame), \$277,075, 1 year, 07/15/2017-07/14/2018
7. “Advancing Sustainable Ammonia Synthesis through Plasma-Assisted Catalysis,” DE-SC0016543, Department of Energy DE-FOA-0001569, Co-PI (w/ Prof. Jason Hicks, Prof William Schnieder, University of Notre Dame), \$195,000, 1 year, 09/15/2016-09/16/2017
8. “Parametric Design of Functional Support Structures for Metal Alloy Feedstocks,” America Makes, Co-PI (University of Pittsburgh lead with Notre Dame sub-contract w/ Prof. David Hoelzle (PI), Prof. Richard Billo, Prof. Steven Schmid), \$805,966, 1.5 years, 07/01/2015-01/31/2017
9. “Coupling Non-Equilibrium, High-Pressure, Micron-Scale Discharges with Surface Reactions: Exploring Synergistic Effects Between Plasma Chemistry and Chemical Catalysis,” AFOSR BRI FA9550-14-1-0041, Co-PI (w/ Prof. R. Mohan Sankaran (PI), Prof. Daniel Lacks, Case Western Reserve University, Prof. Jason Hicks, University of Notre Dame), 3 years, \$1,481,558, 03/01/2014-02/28/2017
10. “Chemically Functionalized Graphene as High Performance Heat Spreader,” Semiconductor Research Corporation Emerging Technologies in Materials, Processes, and Devices, Co-PI (w/ Prof. Tengfei Luo, Prof. Huili “Grace” Xing, University of Notre Dame), \$300,000, 3 years, 11/01/2014-10/31/2016
11. “Plasma Electrochemistry: A New Approach to Green Electrochemistry,” ECS Toyota Young Investigator Fellowship, PI, \$50,000, 1 year, 08/01/2015-07/31/2016
12. “STIR: Probing Electrochemical Reactions at a Plasma-Liquid Interface,” ARO BAA, PI (w/ Prof. R. Mohan Sankaran, Prof. Rohan Alkolkar, Case Western Reserve University, Prof. David Bartels, University of Notre Dame), \$48,107, 0.75 years, 05/01/2014-01/31/2015
13. “Pyroelectric and Ferroelectric-Driven Electrohydrodynamics for Low Input Voltage Cooling of Portable Computing,” Intel Labs University Research Office, PI, \$299,097, 05/01/2013-04/31/2016
14. “Ion-Enhanced Field Emission for Control of Atmospheric Pressure Discharges,” FA9550-11-1-0020, Air Force Office of Scientific Research Young Investigator Award, PI, \$360,000, 3 years, 04/01/2011-03/31/2014

15. "Electrohydrodynamic Flow Tube for Forced Air Cooling of Small-Form Factor Electronics," Intel Corporation Research Council, PI, \$225,000, 3 years, 12/9/2008-05/31/2012

Completed Internal Grants

1. "A Framework for Monitoring Human Wellness from Infancy to Adulthood: Analyzing of Umbilical Cord Blood Progenitor Cells for Predicting Future Health Risk" Advanced Diagnostics and Therapeutics Initiative Discovery Fund, Co-PI (w/ Profs. Donny Hanjaya-Putra, Hsueh-Chia Chang, Richard Dahl (IUSM-South Bend), Laura Haneline (IUSM), Robert Munsick (IUSM)), \$79,998, 1 year, 01/01/2019-12/31/2019.
2. "Stem Cells and their Exosomes: to Model and Predict Preeclampsia" Advanced Diagnostics and Therapeutics Initiative Discovery Fund, Co-PI (w/ Prof. Donny Hanjaya-Putra), \$44,000, 1 year, 08/23/2018-08/22/2019.
3. "Plasma Science and Engineering at ND and PUC: A Workshop to Launch Interdisciplinary Collaborations" Luksic Family Collaboration Grant, PI (w/ Profs. Ryan McClarren, Sylwia Ptasinska, Eric Matlis, Sergey Leonov, and Paul Rumbach), \$15,500, 1 year, 11/28/2018-11/27/2019.
4. "Elucidating the Influence of Ferroelectric Polarization on Metal Ion Adsorption to the Surface of Nanoporous Thin Films" NDnano Seed Grant, Co-PI (w/ Prof. William Phillip, Prof. Haifeng Gao), \$50,000, 1 year, 07/01/2018-06/30/2019.
5. "The Nanotech Collaboration Initiative (NCI)" Notre Dame International Mexico City Global Center Collaboration Grant, Co-PI (w/ Prof. Hsueh-Chia Chang, David Balkin), \$20,000, 1 year, 06/20/2017-06/19/2018.
6. "Paper-SAWN Mass Spectrometry Analysis for Rapid Analysis of Pharmaceuticals in Complex Biological Matrices" Advanced Diagnostics and Therapeutics Initiative, PI (w/ Prof. Marya Lieberman, Dr. Matthew Champion), \$54,320, 1 year, 08/01/2013-07/31/2014.
7. "Rapid Separation of Vesicles by Surface Acoustic Wave-inspired Microfluidics for Early Detection and Diagnosis of Pancreatic Cancer," Walther Cancer Foundation ENSCCII Training Project, Mentor (w/ Daniel Taller (applicant), Prof. Reginald Hill (Co-mentor), University of Notre Dame), \$30,309, 3 years, 06/01/2013-05/31/2016.
8. "AC Electrospray Ionization Mass Spectrometry: A New Technique for the Detection and Identification of Harmful Chemicals," University of Notre Dame Faculty Scholarship Award Program, PI, \$10,000, 1 year, 01/01/2010-12/31/2010

PROFESSIONAL ACTIVITIES

Invited Lectures and Seminars

- Institute of Experimental and Applied Physics, Christian-Albrechts-Universität zu Kiel, Kiel, Germany (fall 2020) – *virtual*
- Engineering Physics Department, Polytechnique Montréal, Montreal, Canada (fall 2020) – *virtual*
- Online Low-Temperature Plasma Seminar (fall 2020) – *virtual*
- Department of Mechanical Engineering, Texas A&M, College Stations, TX (spring 2020) – *canceled due to the COVID-19 pandemic*
- Functional Materials Division (Nanoelectronic Materials Branch) Technical Seminar, Air Force Research Laboratory, Wright-Patterson Air Force Base, Dayton, OH (fall 2017)
- Department of Chemical Engineering, University of Pittsburgh, Pittsburgh, PA (fall 2017)
- Department of Chemistry, University of Southampton, Southampton, England (fall 2016)
- York Plasma Institute, University of York, York, England (fall 2016)
- School of Electrical Engineering and Electronics, University of Liverpool, Liverpool, England (fall 2016)
- Engineering Research Institute, Ulster University, Belfast, Northern Ireland (fall 2016)

- Department of Electrical and Computer Engineering, Western Michigan University, Kalamazoo, MI (spring 2015)
- Electromagnetic Technology Branch Seminar, U.S. Naval Research Laboratory, Washington, D.C. (fall 2014)
- Functional Materials Division (Photonic Materials Branch) Technical Seminar, Air Force Research Laboratory, Wright-Patterson Air Force Base, Dayton, OH (fall 2014)
- High Power Microwave Division Technical Seminar, Air Force Research Laboratory, Kirtland Air Force Base, Albuquerque, NM (spring 2014)
- Department of Mechanical Engineering, University of Minnesota, Minneapolis, MN (fall 2013)
- Department of Chemical and Biomolecular Engineering, University of Notre Dame, Notre Dame, IN (spring 2013)
- Department of Chemistry and Biochemistry, Ohio University, Athens, OH (fall 2012)
- Plasma Science Center, Department of Energy, Web Seminar (spring 2012)
- Department of Chemical Engineering, Case Western Reserve University, Cleveland, OH (spring 2012)
- Department of Physics, Andrews University, Berrien Springs, MI (fall 2010)
- Department of Mechanical Engineering, National University of Singapore, Singapore (spring 2010)
- Department of Mechanical and Industrial Engineering, University of Illinois-Chicago, Chicago, IL (fall 2008)

Journal Editorships and Society Leadership

- President, Electrostatics Society of America, 2019-present
- Associate Editor (Thermal and Mass Transport), *Frontiers in Mechanical Engineering*, 2015-present
 - Research Topic Editor: Direct Thermal Energy Conversion and Utilization
- Associate Editor, *Plasma Sources Science and Technology*, 2020-present
 - Editorial Board, 2017-2020
- Editorial Board, *Journal of Electrostatics*, 2015-present
- Executive Council, Electrostatics Society of America, 2015-2019

Conference Organizing

Leadership Positions

- International Scientific Committee, International Symposium on Plasmas for Catalysis and Energy Materials, 2019-present
- General Chair, 2018 International Symposium on Plasma Nanoscience (iPlasmaNano-IX)
- Workshop Organizer, 2014 NASA Workshop on Thermionic Energy Conversion for Space and Earth
- General Chair, 2014 Annual Meeting of the Electrostatics Society of America
- Local Organizing Committee, 2013 Midwest Universities Analytical Chemistry Conference
- Local Organizing Committee, 2013 Notre Dame-DARPA Workshop on Optical Properties of Plasmas
- Technical Chair, 2013 Annual Meeting of the Electrostatics Society of America

Session/Symposium

- Session Chair, Gaseous Electronics Conference, 2014, 2015, 2017, 2018, 2019
- Session Chair, International Workshop on Microplasmas, 2015
- Session Chair, Annual Meeting of the Electrostatics Society of America, 2011, 2012, 2018
- Session Chair, Intersociety Conference on Thermal and Thermomechanical Phenomena in Electrical Systems (ITherm2012), 2012
- Symposium Organizer, Central Regional Meeting of the American Chemical Society, 2011

Miscellaneous Activities

- Rosenbluth Outstanding Doctoral Thesis in Plasma Physics Award Committee, American Physical Society, Division of Plasma Physics (2016-2017)
- Webmaster, IEEE Components, Packaging, and Manufacturing Technology Society, Thermal Management and Thermo-Mechanical Design TC (2007-2015)
- *Proposal Reviewer*: ASEE NRL Postdoctoral Fellowship, Indiana Clinical and Translational Sciences Institute (ICTSI) CTR grant panel, NSF Combustion, Fire and Plasma Systems, NSF/DOE Partnership in Basic Plasma Science and Engineering, NSF Process Systems, Reaction Engineering, & Molecular Thermodynamics, NASA Science and Technology Research Fellowship, ARPA-E, ACS Petroleum Research Fund, Research Foundation - Flanders (Belgium), Research Corporation for Science Advancement, Sandia Plasma Research Facility
- Direct Submission Editor for Proceedings of the National Academy of Science
- *Journal Referee*: ACS Catalysis, ACS Energy Letters, ACS Nano, Analyst, Analytical Chemistry, Applied Physics Letters, Applied Thermal Engineering, Biomicrofluidics, Chemical Communications, Chemical Engineering Journal, ChemSusChem, Contributions to Plasma Physics, Electrochemistry Communications, Encyclopedia of Plasma Technology, Energy and Buildings, Experimental Thermal and Fluid Science, Experiments in Fluids, IEEE Electron Device Letters, IEEE Transactions on Components, Packaging and Manufacturing Technology, IEEE Transactions on Plasma Science, International Journal of Heat and Mass Transfer, International Journal of Thermal Systems, Journal of Applied Physics, Journal of Electrochemical Society, Journal of Electronics Packaging, Journal of Electrostatics, Journal of Fluids Engineering, Journal of Physical Chemistry, Journal of Physics D: Applied Physics, Journal of the American Society of Mass Spectrometry, Journal of Vacuum Science and Technology A, Journal of Vacuum Science and Technology B, Journal of Visualization, Nanotechnology, Optical Materials Express, Physical Review Applied, Physical Review Letters, Physical Review Research, Physics Letters A, Physics of Plasmas, Plasma Science and Technology, Plasma Sources Science and Technology, PLOS ONE, Review of Scientific Instruments, RSC Advances, Scientific Reports

Professional Memberships

- American Society of Mechanical Engineers
- Institute of Electrical and Electronics Engineers
- American Physical Society
- Electrostatics Society of America
- Electrochemical Society
- American Association for the Advancement of Science
- American Chemical Society

TEACHING AND ADVISING

University of Notre Dame

- AME 20213/21213 Introduction to Measurements and Data Analysis with laboratory (undergraduate-required)
 - 44 students (fall 2012)
 - 48 students (fall 2011)
 - 29 students (fall 2010)
 - 35 students (fall 2009)
 - 43 students (fall 2008)
- AME 21268 Design Tools 2 (undergraduate-required)

- 40 students (spring 2018)
- AME 30334 Heat Transfer (undergraduate-required)
 - 134 students (spring 2016)
 - 129 students (spring 2015)
- AME 30362 Design Methodology (undergraduate-required)
 - 124 students (fall 2019)
- AME 34314 Differential Equations, Vibrations, and Control I (undergraduate-required)
 - 12 students (fall 2016, London Program)
- AME 47431 Designing Energy-Efficient Buildings (undergraduate-elective) with ARCH 41121 (architecture studio course)
 - 8 students (fall 2018)
 - 8 students (spring 2016)
 - 8 students (spring 2015)
 - 4 students (spring 2014)
- AME 47560 Independent Undergraduate Design Projects
 - 4 students (fall 2020) – *sponsored by Marmon Holdings*
 - 5 students (spring 2020) – *sponsored by Marmon Holdings*
 - 5 students (fall 2019) – *co-mentored with Prof. Jim Schmiedeler, sponsored by Marmon Holdings*
 - 6 students (spring 2019) – *co-mentored with Prof. Jim Schmiedeler, sponsored by Marmon Holdings*
- AME 54535 Energy Systems (undergraduate-elective)
 - 13 students (fall 2016, London Program)
- AME 60634 Intermediate Heat Transfer (graduate)
 - 4 students (fall 2013)
 - 12 students (spring 2013)
 - 8 students (spring 2011)
 - 8 students (spring 2009)
- AME 60637/70637 Ionization and Ion Transport (graduate)
 - 4 students (spring 2021)
 - 11 students (fall 2017)
 - 7 students (fall 2015)
 - 3 students (spring 2014)
 - 3 students (spring 2012)
 - 9 students (spring 2010)

Visiting Scientists

1. Prof. Daniel Elg, University of Southern Indiana, 05/2019-07/2019, *summer 2020 cancelled due to COVID and moved to summer 2021*
2. Prof. Keiichiro Yoshida, Osaka Institute of Technology (Osaka, Japan), 03/2016-07/2016
3. Dr. Jenny Ho, Monash University (Melbourne, Australia), 07/2010 – 11/2010

Post-Doctoral Scholars and Research Scientists

1. Dr. Paul Rumbach, Post-Doctoral Scholar and Research Scientist, 01/2016 – pres.
2. Dr. Seung-Ryong Kwon (with Prof. Paul Bohn), 08/2018 – 08/2019
3. Dr. Zeinab Ramshani (with Prof. Hsueh-Chia Chang) 01/2017 – 07/2019
4. Dr. Donghoon Han (with Prof. Paul Bohn), 05/2015 – 07/2018
5. Dr. Michael Johnson, Post-Doctoral Scholar, 05/2016 – 07/2016
6. Dr. Ying Wang, Post-Doctoral Scholar, 01/2015 – 01/2016

7. Dr. Mridul Mandal (with Prof. Marya Lieberman), Post-Doctoral Scholar, 03/2014 – 02/2015
8. Dr. Nishant Chetwani, Edison Post-Doctoral Scholar, 10/2011 – 01/2012
9. Dr. Ming Tan, Post-Doctoral Scholar, 07/2010 – 05/2011

Graduate Students (followed by first position after graduation)

Ph.D. (current)

1. Ibukunoluwa Akintola, 2024 - *anticipated*
2. Garam Lee, (Department of Chemical and Biomolecular Engineering, Co-Advisor Prof. Casey O'Brien), 2023 – *anticipated*
3. Jinyu Yang (Co-advisor Prof. Seong-kyun Im, Korea University), 2021 – *anticipated*
4. Fernando Alamos (Co-advisor Prof. Steven Schmid, University of North Carolina-Charlotte), 2021 – *anticipated*
5. Nazli Turin, 2021 – *anticipated*
6. Daniel Martin, 2023 – *anticipated*
7. Hernan Delgado de la Garza (Department of Chemical and Biomolecular Engineering), 2021 – *anticipated*

Ph.D. (graduated)

1. Francisco Herrera, 2019 – Intel Corporation, Hillsboro, OR.
2. Xi Tan, 2019 – RadiaSoft LLC, Boulder, CO
3. John Haase, 2018 – Raytheon, Tucson, AZ
4. Xin Mu (Co-advisor Prof. Tengfei Luo, Department of Aerospace and Mechanical Engineering), 2018 – BMO Harris Bank, Chicago, IL
5. Michael Johnson, 2016 – Post-Doctoral Scholar, Department of Aerospace and Mechanical Engineering, University of Notre Dame
6. Paul Rumbach, 2016 – Post-Doctoral Scholar and Instructor, Department of Aerospace and Mechanical Engineering, University of Notre Dame
7. Daniel Taller (Co-advisor Prof. Hsueh-Chia Chang, Department of Chemical and Biomolecular Engineering), 2015 – Space Exploration Technologies Corporation (SpaceX), Hawthorne, CA
8. Yingjie Li, 2014 – Prism Computational Sciences, Madison, WI
9. Rakshit Tirumala, 2013 – postdoctoral scholar, Institute Pprime, University of Poitiers, France
10. Alejandro Guajardo-Cuéllar (Co-advisor Prof. Mihir Sen, Department of Aerospace and Mechanical Engineering), 2011 – Philips Lighting, Eindhoven, The Netherlands

M.S.

1. Jenny Baranker, 2021 – *anticipated*
2. Ankur Saxena, 2021 - *anticipated*
3. Katherine Isbell, Chemistry and Biochemistry (Co-advisor Prof. Amanda Hummon, Department of Chemistry and Biochemistry), 2011 – Center for Disease Control, Atlanta, GA, United States.
4. Sajanish Balagopal, 2011 – Cummins Inc., Columbus, IN, United States.

ESTEEM Advisor

1. Flora Zieger, ESTEEM program, 2016 – Pazmany Peter Catholic University, Budapest, Hungary
2. Helga Feiszthuber, ESTEEM program, 2015 – UltraDerm Diagnostics, Budapest, Hungary
3. S. Kiel Hockett, ESTEEM program, 2011 – PTC, Minneapolis, MN, United States.

SERVICE AND OUTREACH

Outreach

- *Skype a Scientist* participant
 - St. Pius X School, S. Yarmouth, MA, 2020
- Exhibitor at St. Joseph County Public Library *Science Alive!* (South Bend, IN) (2014-present)
 - hosted table on plasma science and technology at local science and technology expo targeting K-8 students with more than 2000 visitors annually
- High School Research: Coordinate Research Trinity School at Greenlawn, South Bend and University of Notre Dame and mentor student research projects
 - Anna Kelley (junior), 2020-2021
 - Victor Karwacinski (senior), 2018-2019 – *1st place award in Northern Indiana Regional Science and Engineering Fair, 2019, progressed to Hoosier Science and Engineering Fair but did not participate*
 - Mary Sgroi and Victor Karwacinski (juniors), 2017-2018 – *1st place award in Northern Indiana Regional Science and Engineering Fair, 2018; 2nd place (11th grade) in Hoosier Science and Engineering Fair, 2018; participated in Intel International Science and Engineering Fair, 2018; Indiana winner, Stockholm Junior Water Prize, 2018*
 - Richard Allen III (junior), 2014-2016 – *2nd place award in Northern Indiana Regional Science and Engineering Fair, 2015*
 - Nick Cramer (junior), 2014-2015 – *2nd place award in Northern Indiana Regional Science and Engineering Fair, 2015*
 - John Linczer (senior), 2013-2014 – *1st place award in Northern Indiana Regional Science and Engineering Fair, 2014*
 - *Co-author on M. J. Johnson, J. Linczer, D. B. Go, “Thermally induced atmospheric pressure gas discharges using pyroelectric crystals,” *Plasma Sources Science and Technology*, vol. 23, art. no. 065018, 2014*
 - Nathaniel Griggs (senior), 2012-2013 – *2nd place award in Northern Indiana Regional Science and Engineering Fair, 2013*
- Director, Water Impact Investigation (WII) Team outreach program for middle school students at Holy Cross Grade School (South Bend, IN) (2011-2012) and South Bend Career Academy (South Bend, IN) (2013)
 - combined presentations, bench top experiments, facility tours, and high-level chemical analysis at the Notre Dame Mass Spectrometry and Proteomics facility to introduce students to the importance of water, how it is contaminated, the tools we use to analyze it, and what they can do to improve water quality
- Lead Coordinator, MATHCOUNTS middle school mathematics competition (2009-2013)
- Faculty Lecture, Trinity School at Greenlawn, South Bend, IN (fall 2017)
- Student Body Lecture, Trinity School at Greenlawn, South Bend, IN (fall 2008, spring 2019)
- Guest Lecture, Indiana University-South Bend (spring 2020)