

# Curriculum Vitae

## Rodrigo MARTINEZ-DUARTE, Ph.D.

Associate Professor, Department of Mechanical Engineering, Clemson University

E-mail: rodrigm@clemson.edu ■ ResearcherID: E-8224-2010

### PROFESSIONAL PREPARATION

Tecnológico de Monterrey, Mexico (advisor S. Martinez-Chapa)	Electrical Engineering	B.S.	2004
University of California, Irvine, USA (advisor M. Madou)	Mechanical Engineering	M.S.	2009
University of California, Irvine, USA (advisor M. Madou)	Mechanical Engineering	Ph.D.	2010
École Polytechnique Fédérale de Lausanne, EPFL, Switzerland (advisor P. Renaud)	Microtechnology	Postdoc	2010-2013

### PROFESSIONAL APPOINTMENTS

2024	<b>Guest Professor.</b> Department of Microtechnology and Nanoscience, Chalmers University of Technology, Sweden. (hosted by M. Asplund)
2022-present	<b>Faculty Member.</b> Clemson University Eukaryotic Pathogens Innovation Center, USA.
2021-present	<b>Advisor.</b> Clemson University student chapter of the Society of Hispanic Professional Engineers (SHPE), USA. <i>Invited by students.</i>
2019-present	<b>Associate Professor.</b> Clemson University, Department of Mechanical Engineering, USA.
2018-present	<b>Chair.</b> Global Engagement Committee of the College of Engineering, Computing, and Applied Sciences (CECAS) at Clemson University, USA. <i>Elected.</i>
2021-2022	<b>Chair.</b> Clemson University Commission on Latino Affairs, USA. <i>Elected.</i>
2018-2020	<b>President.</b> AES Electrophoresis Society. <i>Elected.</i>
2015-present	<b>Faculty Scholar.</b> Clemson University School of Health Research, USA.
2013-2019	<b>Assistant Professor.</b> Clemson University, Department of Mechanical Engineering, USA.
2009	<b>Visiting Research Scholar.</b> Ulsan National Institute for Science and Technology (UNIST), South Korea (hosted by Y-k Cho)
2007	<b>Visiting Research Scholar.</b> Indian Institute of Technology (IIT), Kanpur, India (hosted by A. Sharma)
2006	<b>Visiting Research Scholar.</b> Universitat de Barcelona, Spain (hosted by J. Samitier)
2005	<b>Project Scientist,</b> Tecnológico de Monterrey, Mexico

## HONORS AND AWARDS

- *Distinguished Service Award*, AES Electrophoresis Society, 2023.
- *Provost Senior Tenured Outstanding Teaching Award*, Clemson University (highest award for teaching for senior faculty at university), 2023.
- *Phil Prince Innovation in Teaching Award*, Clemson University Student Government (highest award from university Student Government), 2023.
- *Murray Stokely Award for Excellence in Teaching*, Clemson U College of Engineering, Computing, and Applied Science (CECAS), 2022.
- *Impact Award*, Hispanic/LatinX Heritage Month at Clemson University, 2021.
- *Junior Faculty Eastman Award for Excellence*, Clemson U Mechanical Engineering, 2019.
- *Esin Gulari Leadership and Service Award*, Clemson U CECAS, 2019.
- *Represented Clemson University in the Awardees Reception at a White House ceremony presided by former Vice-President Joe Biden*. Invitation came because of winning a 100k Strong in the Americas Innovation Fund grant, a first for CU (2016).
- *ME Cheermeister Award*, Clemson ASME Student Chapter (2013).
- *3<sup>rd</sup> Place*, Student Poster Session. ECS Spring Meeting New Orleans 2017. Undergraduate student authors, Poster session of 70 mostly graduate students.
- *Honorable Mention*, Student Poster Session. ECS Spring Meeting New Orleans 2017. Undergraduate student authors. Poster session of 70 mostly graduate students.
- *2<sup>nd</sup> place*, Student Poster Session. Annual meeting of the AES Electrophoresis Society San Francisco, 2016. Graduate student author.
- My graduate students received the Eastman Chemical Research Award in ME (2018), ME Departmental Award for Graduate Research (2017), Hitachi High Technologies Fellowship (2016) and the College of Engineering and Applied Sciences Outstanding Teaching Assistant Award (2018).
- *Public Impact Fellowship*, University of California, Irvine (2010)
- *Departmental Fellowship*, University of California, Irvine (2005-2007)
- *Magna Cum Laude*, Tecnológico de Monterrey, Mexico (2004).
- *Best Designer Award*, Electrical and Computer Engineering Department, University of Illinois at Urbana-Champaign (2003).
- *Excellence Scholarship*, Tecnológico de Monterrey (2000-2004).

## TEACHING

### Courses Taught

**ME3120: Manufacturing Processes and their Application.** Junior-level core course. Taught F13, S14, F14, F15, F16, F17, F18, F19, S20, F20, S21, F21, S22, F22, S23, F23, S24. Class size averages 80 students. Minimum 35, Maximum 114.

**ME4580/6580: Fundamentals of Micro/Nanofabrication.** Introduced this course to the curriculum. Undergraduate Technical Elective and Graduate course. Taught S15, S16, S17, S18, F19, F20, F21, F22, F23. Growing in number of students, 60 students in F23.

**International ME4020: International Internship in Engineering Design.** Introduced this modality to the curriculum. Undergraduate Senior-level core course. Su21, Su22, Su23, Su24.

**ME4021: Internship in Engineering Design.** S17, S18, S19, S23. Average 30 students from multiple universities.

**ME4150: Individual Undergraduate Research.** F16, F17, F19. **Honors Thesis:** F20, S21, S23, F23, S24, F24.

**ME2900: Clemson-Tec de Monterrey Project.** Engineering project in collaboration with Meritor Inc. and Tecnologico de Monterrey, Mexico. 1 Clemson student participated in Summer 2016 (+11 from Tec) and 2 Clemson students in Summer 2017 (+9 from Tec). 18 student credit hours total. Su16, Su17. Funded by the 100K in the Americas grant.

**ENGR1900, ME2900/3900/4900: Creative Inquiry.** Multiple Sections for Creative Inquiry projects as detailed above.

## SCHOLARLY PRODUCTION

KEY for authors: \* postdoc, # graduate students, \$ undergraduate student, & corresponding author

### Books

- **R. Martinez-Duarte** and R. Pethig “Principles, Systems, and Applications of Dielectrophoresis” Under contract with Wiley, expected publication 2027.
- **R. Martinez-Duarte**, “Micromachines for Dielectrophoresis, Volume II” Editor. *MDPI Books*, pp. 220, ISBN 978-3-0365-7301-4 (2023)
- **R. Martinez-Duarte**, “Micromachines for Dielectrophoresis” Editor. *MDPI Books*, pp. 186, ISBN 978-3-0365-4338-3 (2022)

### Book Chapters and Monographs

- M. Islam#, R. Natu# and **R. Martinez-Duarte**&, “Carbon MEMS for Selected Lab-on-a-chip applications” in “Carbon: The Next Silicon” edited by V. Perez, B. Pramanick and M. Madou. *Momentum Press*, New York (2015). Invited.
- M. Islam#, R. Natu# and **R. Martinez-Duarte**&, “C-MEMS” in “Encyclopedia of Nanotechnology” edited by B. Bhushan. *Springer* (2015). Invited.

- **R. Martinez-Duarte** and M. Madou. "SU-8 Photolithography and its impact on Microfluidics" in *Microfluidics and Nanofluidics Handbook – Fabrication, Implementation and Applications* edited by S. Mitra and S. Chakraborty. *CRC Press/Taylor & Francis Group*, 231-268 (2011). Invited.
- **R. Martinez-Duarte**, G. Turon Teixidor, P. Mukherjee, Q. Kang and M. J. Madou, "Perspectives of Micro and Nanofabrication of Carbon for Electrochemical and Microfluidic Applications" in *Microfluidics and Microfabrication* edited by S. Chakraborty, *Springer*, 181-263 (2009). Invited.

### **Refereed Journal Publications**

#### *Under Review*

1. S. Baddam, M. Howe, and R. Martinez-Duarte, "Growing Bacterial Cellulose under AC electric fields", *Oxford Open Materials Science*, under review (2024).
2. P. Baggott, I. Nazim, M. Shah, and **R. Martinez-Duarte**<sup>&</sup>, "Characterization of Triangular Tungsten Carbide Lattices Material Properties and Structural Changes in Manufacturing With Sustainable Materials", *Procedia Manufacturing*, under review (2024). Undergraduate student authors.
3. M. Howe, L. Mantilla, A. Indupally, and **R. Martinez-Duarte**<sup>&</sup>, "Optimization of Surface Roughness in the Electrodeposition Process", *Procedia Manufacturing*, under review (2024).
4. J. Bevis and **R. Martinez-Duarte**<sup>&</sup>, "Robocasting of a water-based biopolymer/WO<sub>3</sub> nanopowder paste as a precursor to Tungsten Carbide lattices" *Advanced Engineering Materials*, under review (2024).

#### *Published*

##### *2024*

1. J. de los Santos-Ramirez, C. Mendiola-Escobedo<sup>§</sup>, J. Cotera-Sarabia<sup>§</sup>, R. Gallo-Villanueva, **R. Martinez-Duarte**<sup>&</sup>, and V. Perez-Gonzalez<sup>&</sup>, "Short Communication: Ultra-low voltage electrokinetic particle trapping in DC-iEK devices using 9V alkaline batteries as power supply." *Electrophoresis*, under review (2024). *International collaboration with Tecnologico de Monterrey, Undergraduate student authors.*
2. J. de los Santos-Ramirez, C. Mendiola-Escobedo<sup>§</sup>, J. Cotera-Sarabia<sup>§</sup>, R. Gallo-Villanueva, **R. Martinez-Duarte**<sup>&</sup>, and V. Perez-Gonzalez<sup>&</sup>, "Enabling the characterization of the nonlinear electrokinetic properties of particles using low voltage" *Analyst*, 149, 3839-3849 (2024). *International collaboration with Tecnologico de Monterrey, Undergraduate student authors.*
3. D. Keck<sup>#</sup>, S. Ravi<sup>§</sup>, **R. Martinez-Duarte**<sup>&</sup>, "The effect of different system parameters on the movement of microbial cells using light-induced

dielectrophoresis” *Micromachines*, 15, 3, 342 (2023). Undergraduate student author.

2023

4. **R. Martinez-Duarte**, “Editorial for the Special Issue on Micromachines for Dielectrophoresis Volume II” *Micromachines*, 14, 769 (2023).

2022

5. **R. Martinez-Duarte**, D. Mager, J. Korvink, and M. Islam “Evaluating Carbon-electrode Dielectrophoresis under the ASSURED criteria” *Frontiers in Medical Technology*, 4 (2022). *International collaboration with KIT, Germany.*
6. T. Guggisberg, S. Turnbull, J. E. Dobarganes, L. Alvarado and **R. Martinez-Duarte**<sup>&</sup>, “Identifying best practices to sustain a US-Mexico International Program integrated into an engineering curriculum” *ASEE Annual Conference & Exposition, Minneapolis (2022)*. *International collaboration with Universidad de Guanajuato, Mexico.*
7. **R. Martinez-Duarte**<sup>&</sup>, J. I. Molina-Verdugo, M. Guerra-Ayala “Connecting classrooms across borders to engineer a process to manufacture a Tequila bottle” *ASEE Annual Conference & Exposition, Minneapolis (2022)*. *International collaboration with ITESO, Mexico.*
8. M. Islam, P. Weidler, D. Mager, J. Korvink, **R. Martinez-Duarte**<sup>&</sup> “Comparing Carbon Origami from Polyaramid and Cellulose Sheets” *Micromachines*, 13, 503 (2022). *International collaboration with KIT, Germany.*
9. **R. Martinez-Duarte**, “Editorial for the Special Issue on Micromachines for Dielectrophoresis” *Micromachines*, 13, 3, 417 (2022).

2021

10. G. Diaz-Armas<sup>§</sup>, A. P. Cervantes-Gonzalez<sup>§</sup>, **R. Martinez-Duarte**<sup>&</sup> and V. H. Perez Gonzalez, “Electrically-driven microfluidic platforms for exosome manipulation and characterization – A review” *Electrophoresis*, 43, 327-339 (2021). *International collaboration with Tecnológico de Monterrey. Undergraduate student authors.*
11. **R. Martinez-Duarte** “A critical review on the fabrication techniques that can enable higher throughput in dielectrophoresis devices” *Electrophoresis*, 43, 232-248 (2021).
12. J.B. Bevis<sup>§</sup>, S. Dunlavey<sup>§</sup>, and **R. Martinez-Duarte**<sup>&</sup>, “Comparing the performance of different extruders in the Robocasting of biopolymer-nanoparticle composites towards the fabrication of complex geometries of porous Tungsten Carbide” *Procedia Manufacturing*, 53, 338-342 (2021). Undergraduate student authors.

2020

13. D. Keck<sup>#</sup>, C. Stuart<sup>§</sup>, J. Duncan<sup>§</sup>, E. Gullette<sup>§</sup> and **R. Martinez-Duarte<sup>&</sup>**, “Highly localized Enrichment of *Trypanosoma brucei* parasites using dielectrophoresis” *Micromachines*, 11 (6), 625 (2020). Undergraduate student authors.
14. M. Islam<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>**, “Tuning the mechanical stiffness of Lightweight Carbon Origami” *Materials Today: Proceedings*, in press (2020). <https://doi.org/10.1016/j.matpr.2020.06.371>. *International collaboration with KIT, Germany.*
15. M. Islam<sup>#</sup> and **R. Martinez-Duarte**, “The impact of using different renewable films in the synthesis and microstructure of carbonaceous materials applicable in origami-inspired manufacturing” *Materialia*, 11, 100734 (2020). *International collaboration with KIT, Germany.*
16. M. Islam<sup>#</sup>, D. Keck<sup>#</sup>, J. Gilmore and **R. Martinez-Duarte<sup>&</sup>**, “Characterization of the dielectrophoretic response of different *Candida* strains using 3D carbon microelectrodes” *Micromachines*, 11 (3), 255-267 (2020).

2019

17. M. Islam<sup>#</sup>, D. Keck<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>**, “Architected Tungsten Carbide Electrodes using Origami Techniques” *Advanced Engineering Materials*, doi:10.1002/adem.201900290 (2019).
18. G. Carrillo<sup>§</sup>, D. Keck<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>**, “Mechanical Properties and Process Improvement of Tungsten Carbide Additively Manufactured with Renewable Biopolymers” *Procedia Manufacturing*, 34, 704-711 (2019). Undergraduate student author.
19. R. Natu<sup>#</sup>, M. Islam<sup>#</sup>, D. Keck<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>**, “Pick and Transfer of targeted cells using dielectrophoresis” *Lab on a chip*, 19, 2512-2525 (2019).
20. R. Natu<sup>#</sup>, M. Islam<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>**, “Non-dimensional streaming dielectrophoresis number for a system of continuous particle separation” *Analytical Chemistry*, 91, 7, 4357-4367 (2019).
21. M. Elitas, Y. Yildizhan, M. Islam<sup>#</sup>, **R. Martinez-Duarte** and D. Ozkazanc, “Dielectrophoretic characterization and separation of monocytes and macrophages using 3D carbon-electrodes” *Electrophoresis*, 40, 315-321 (2019). *International Collaboration with Sabanci Universitesi, Turkey.*

2018

22. Y. Yildizhan, U. B. Gogebakan, A. Altay, M. Islam<sup>#</sup>, **R. Martinez-Duarte** and M. Elitas, "Quantitative Investigation for the Dielectrophoretic Effect of Fluorescent Dyes at Single-cell resolution" *ACS Omega*, 3, 7, 7243-7246 (2018). *International Collaboration with Sabanci Universitesi, Turkey.*
23. M. Islam<sup>#</sup>, J. Flach<sup>§</sup> and **R. Martinez-Duarte**<sup>&</sup>, "Carbon Origami: A Method to Fabricate Lightweight Carbon Cellular Materials" *Carbon*, 133, 140-149 (2018). Undergraduate student author.
24. R. Natu<sup>#</sup>, M. Islam<sup>#</sup>, J. Gilmore<sup>\*</sup> and **R. Martinez-Duarte**<sup>&</sup>, "Shrinkage of SU-8 microstructures during carbonization" *Journal of Analytical and Applied Pyrolysis*, 131, 17-27 (2018).
25. M. Islam<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup> "Fabrication of Lightweight 3D complex shapes of cellular carbonaceous material" *ECS Transactions*, 85 (1), 29-36 (2018).
26. G. Carrillo<sup>§</sup>, M.C. Sullivan<sup>§</sup>, M. Islam<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, "3D Printing of Carbides using Renewable Resources" *ECS Transactions*, 85 (1), 37-44 (2018). Undergraduate student authors.

#### 2017

27. Y. Yildizhan, N. Erdem, M. Islam<sup>#</sup>, **R. Martinez-Duarte** and M. Elitas, "Dielectrophoretic Separation of Live and Dead Monocytes using 3D carbon-electrodes", *Sensors*, 17 (11), 2691 (2017). *International Collaboration with Sabanci Universitesi, Turkey.*
28. M. Islam<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, "A sustainable approach for tungsten carbide synthesis using renewable polymers", *Ceramics International*, 43 (13), 10546-10553 (2017).
29. J. Gilmore<sup>\*</sup>, M. Islam<sup>#</sup>, J. Duncan<sup>§</sup>, R. Natu<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, "Assessing the importance of the root mean square (RMS) value of different waveforms to determine the strength of a dielectrophoresis trapping force" *Electrophoresis*, 38, 2561-2564 (2017). Undergraduate student author.

#### 2016

30. R. Natu<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, "Numerical model of streaming DEP for stem cell sorting" *Micromachines*, 7 (12), 217 (2016). Invited.
31. **R. Martinez-Duarte**<sup>&</sup>, "Fabrication Challenges and Perspectives on the use of Carbon-electrode Dielectrophoresis in Sample Preparation" *IET Nanobiotechnology*, 11 (2), 127-133 (2016). Invited Critical Review.
32. M. Islam<sup>#</sup>, R. Natu<sup>#</sup>, M. F. Larraga-Martinez<sup>§</sup> and **R. Martinez-Duarte**<sup>&</sup> "Enrichment of diluted cell population from large sample volumes using 3D Carbon-electrode Dielectrophoresis" *Biomicrofluidics*, 10, 033107 (2016). Undergraduate student author.

33. T. Benavidez, **R. Martinez-Duarte** and C. Garcia, "Analytical Methodologies Using Carbon Substrates developed by Pyrolysis" *Analytical Methods*, 8, 4163-4176 (2016). Invited Critical Review.
34. J. Gilmore<sup>\*</sup>, M. Islam<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, "The challenges to the use of Compact Disc-based Centrifugal Microfluidics for Healthcare Diagnostics at the Extreme Point of Care" *Micromachines*, 7, (4), 52 (2016). Invited Critical Review.
35. M. Islam<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, "Towards Additive Manufacturing of Tungsten Carbide Using Renewable Resources". *ECS Transactions*, 72 (1), 3-9 (2016).
36. M. Islam<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, "Synthesis of Tungsten Carbide from Bacterial Cellulose". *ECS Transactions*, 72 (1), 11-16 (2016).
37. M. Islam<sup>#</sup>, R. Natu<sup>#</sup>, M. F. Larraga-Martinez<sup>%</sup>, G. Contreras-Davila<sup>#,%</sup> and **R. Martinez-Duarte**<sup>&</sup>, "3D Carbon-Electrode Dielectrophoresis for Enrichment of a Small Cell Population from a Large Sample Volume". *ECS Transactions*, 72 (1), 97-103 (2016). Undergraduate student authors.
38. G. Contreras-Davila<sup>#,%</sup>, J. I. Gomez-Quinones, V. H. Perez-Gonzales and **R. Martinez-Duarte**<sup>&</sup>, "Assessing the Advantages of Using Square Wave Signals for Particle Trapping in Carbon-electrode Dielectrophoresis". *ECS Transactions*, 72 (1), 105-114 (2016). *International Collaboration with Tecnologico de Monterrey, Mexico.*
39. R. Natu<sup>#</sup>, M. Islam<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, "Shrinkage Analysis of Carbon Micro Structures Derived from SU-8 Photoresist". *ECS Transactions*, 72 (1), 27-33 (2016).
40. E. Giogli<sup>#</sup>, M. Islam<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, "Fabricating Suspended Carbon Wires Using SU-8 Photolithography". *ECS Transactions*, 72 (1), 125-134 (2016).
41. J. P. Flach<sup>\$</sup>, P. Figuereido de Lima<sup>\$</sup>, J. Sparks<sup>\$</sup>, M. Islam<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, "Synthesis of Titanium Oxycarbide through carbothermal reduction of titanium dioxide nanoparticles and renewable polymers". *ECS Transactions*, 72 (1), 17-23 (2016). Undergraduate student authors.

2015

42. M. Islam<sup>#</sup>, R. Natu<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, "A study on the limits and advantages of using desktop cutter plotter to fabricate microfluidic networks" *Microfluidics and Nanofluidics*, 19, (4), 973-985 (2015).

2014



43. **R. Martinez-Duarte**<sup>&</sup>, “SU-8 Photolithography as a Toolbox for Carbon MEMS”. *Micromachines*, 5, (3), 766-782 (2014). Invited Review published in the special issue: 15 years of SU-8 as MEMS material.
44. D. Bonzon, **R. Martinez-Duarte**, P. Renaud and M. Madou, “Biomimetic *Pieris rapae*'s Nanostructure and its use as a simple Sucrose Sensors”. *Micromachines*, 5, (2), 216-227 (2014).
45. **R. Martinez-Duarte**<sup>&</sup>, “Carbon-electrode Dielectrophoresis for Bioparticle Manipulation”. *ECS Transactions*, 61, (7), 11-22 (2014).
46. M. Elitas, **R. Martinez-Duarte**<sup>&</sup>, N. Dhar, J. McKinney and P. Renaud, “Dielectrophoresis-based purification of antibiotic-treated bacterial subpopulations”. *Lab on a Chip*, 14, (11) 1850-1857 (2014). 31 citations. Highlighted in the LOC Blog.

### 2013

47. M.C. Jaramillo, **R. Martinez-Duarte**, M. Hüttener, P. Renaud, E. Torrents and A. Juarez, “Increasing PCR sensitivity by removal of Polymerase inhibitors in natural samples using Dielectrophoresis”. *Biosensors and Bioelectronics*, 43, 297-303 (2013).
48. **R. Martinez-Duarte**, F. Camacho-Alanis, P. Renaud and A. Ros, “Dielectrophoresis of lambda-DNA using 3D carbon electrodes” *Electrophoresis*, 34, 1113-1122 (2013).

### 2012

49. **R. Martinez-Duarte**<sup>&</sup>, “Microfabrication Technologies in Dielectrophoresis Applications – a review”, *Electrophoresis*, **33**, 3110-3132 (2012).
50. G. Mernier, **R. Martinez-Duarte**<sup>&</sup>, R. Lehal, F. Radtke and P. Renaud, “Very High throughput electrical cell lysis and extraction of intracellular compounds using 3D carbon electrodes in lab-on-a-chip devices” *Micromachines*, **3**, 574-581 (2012).
51. S. Cito, Y.-C. Ahn, J. Pallares, **R. Martinez-Duarte**, Z. Chen, M. Madou and I. Katakis, “Visualization and measurement of capillary-driven blood flow using spectral domain optical coherence tomography” *Microfluidics and Nanofluidics*, **13**, 227-237 (2012).

### 2011

52. **R. Martinez-Duarte**<sup>&</sup>, P. Renaud and M. J. Madou, “A novel approach to dielectrophoresis using carbon electrodes” *Electrophoresis*, **32**, 2385-2392 (2011).

53. Rammohan, P. K. Dwivedi, **R. Martinez-Duarte**, H. Katepalli, M. J. Madou and A. Sharma, "One-step Grayscale technique for the fabrication of 3-dimensional structures" *Sensors and Actuators B*, 153, 1, 125-134 (2011).

2010

54. **R. Martinez-Duarte**&, R. Gorkin, K. Abi-Samra, M. Madou, "The integration of 3D Carbon-electrode Dielectrophoresis on a CD-like Centrifugal Microfluidic Platform" *Lab-on-a-chip*, 10, 8, 1030-1043 (2010).
55. M. C. Jaramillo, E. Torrents, **R. Martinez-Duarte**, M. Madou and A. Juarez, "On-line separation of bacterial cells by carbon-electrode dielectrophoresis" *Electrophoresis*, 31, 2921-2928 (2010).

2008

56. **R. Martinez-Duarte**, S. Cito, E. Collado-Arredondo, S. O. Martinez and M. Madou, "Fluidodynamic and Electromagnetic Characterization of 3D Carbon Dielectrophoresis with Finite Element Analysis" *Sensors & Transducers Journal*, 3, 25-36 (2008).

### **Workshops & Related Presentations**

1. H. J. Arismendi-Valle, R. Rosas-Rangel, T. Guggisberg, **R. Martinez-Duarte** "The role of the training partner in facilitating design in international engineering" IFE (Institute for the Future of Education) Conference at Tecnologico de Monterrey (2024).
2. C. Dancz, **R. Martinez-Duarte**, B. Trogden, and S. Nagy, "Curricular Global Challenge as Invitation to Global Learning" AAC&U Global Learning Conference: Meeting Global Challenges: Washington, DC (2023).
3. K. Anderson, J. Schmidt and **R. Martinez-Duarte** "The Corporate Partner: Forging New Global Connections" International Virtual Exchange Conference IVEC (2021).
4. **R. Martinez-Duarte** "International Virtual Exchange (IVE) Activities in Mexico" CECAS IVE Workshop at Clemson University (2021).
5. T. Schweisinger and **R. Martinez-Duarte** "Improving Engagement and Advancing Production Quality of your Video Teleconference" ASEE Southeastern Section Annual Conference (2021).

### **Reviewed Conference Proceedings**

1. E. Sengul, O. Kara, Y. Yildizhan, **R. Martinez-Duarte**, and M. Elitas, "Single Cell Level Dielectrophoretic Responses & Dielectrophoretic Deformations of Monocytes to Quantify Population Heterogeneity" Proceedings of the 42nd Annual International Conference of the IEEE

- Engineering in Medicine and Biology Society (EMBC) in conjunction with the 43rd Annual Conference of the Canadian Medical and Biological Engineering Society (2020). *International Collaboration with Sabanci Universitesi, Turkey*.
2. M. Islam<sup>#</sup>, J. Gilmore<sup>\*</sup>, K. Wallace<sup>§</sup>, and **R. Martinez-Duarte<sup>&</sup>**, "Dielectrophoretic characterization of *Candida* species with 3D carbon electrodes towards separation and species-specific diagnosis", 21<sup>st</sup> International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2017): Savannah, GA, in press (2017). Undergraduate student authors.
  3. R. Natu<sup>#</sup>, M. Islam<sup>#</sup>, and **R. Martinez-Duarte<sup>&</sup>**, "Development of a streaming dielectrophoresis number to describe a system for continuous particle separation", 21<sup>st</sup> International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2017): Savannah, GA, in press (2017).
  4. M. Islam<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>**, "Additive Manufacturing of Carbides using Renewable Resources" ASME 2015 IMECE, Volume 2B: Advanced Manufacturing, V02BT02A055 (2015).
  5. R. Natu<sup>#</sup>, M. Islam<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>**, "Carbon Cone Electrodes for Selection, Manipulation and Lysis of Single Cells" ASME 2015 IMECE, Volume 3: Biomedical and Biotechnology Engineering, V003T03A077 (2015).
  6. J. Gomez-Quiñones, H. Moncada-Hernandez, O. Rosetto, **R. Martinez-Duarte**, B. Lapizco-Encinas, M. Madou, S.O. Martinez-Chapa, "An application specific multi-channel stimulator for electrokinetically-driven microfluidic devices", *Proceedings of IEEE NEWCAS*, Grenoble, France (10/2011).
  7. J.-I. Heo, D.-S. Shim, **R. Martinez-Duarte**, M. Madou and H. Shin, "3-D Carbon Interdigitated Array Nanoelectrodes for sensing neurotransmitters" *Proceedings of microTAS*; Gronigen, The Netherlands (10/2010).
  8. **R. Martinez-Duarte**, R. Gorkin, K. Abi-Samra and M. J. Madou, "The Integration of 3D carbon Dielectrophoresis on a rotating platform" *Proceedings of Transducers*: Denver, CO (06/2009).
  9. **R. Martinez-Duarte**, M. J. Madou, G. Kumar and J. Schroers, "A novel method for Amorphous Metal Micromolding using Carbon MEMS" *Proceedings of Transducers*: Denver, CO (06/2009).
  10. **R. Martinez-Duarte**, J. Andrade-Roman, S. O. Martinez and M. Madou, "A High Throughput Multi-stage, Multi-frequency Filter and Separation Device based on Carbon Dielectrophoresis" *Proceedings of NSTI-Nanotech*: Boston, MA(06/2008).
  11. **R. Martinez-Duarte**, S. Cito, E. Collado-Arredondo, S. O. Martinez and M. Madou, "Fluidodynamic and Electromagnetic Characterization of 3D Carbon Dielectrophoresis with Finite Element Analysis" *Proceedings of NSTI-Nanotech*: Boston, MA (06/2008).

12. **R. Martinez-Duarte**, H. A. Rouabah, N. G. Green, M. Madou and H. Morgan, "Higher Efficiency and Throughput in Particle Separation with 3D Dielectrophoresis with C-MEMS". *Proceedings of microTAS: Paris, France* (10/2007).

### **Magazine Articles**

1. R. Martinez-Duarte, "Beyond Stone-Age Sample Prep", *The Pathologist*, Issue 0517: May (2017). Invited opinion article. Online at <https://thepathologist.com/issues/0517/beyond-stone-age-sample-prep/>
2. R. Martinez-Duarte, "Beyond Stone-Age Sample Prep", *The Analytical Scientist*, Issue 0517: May (2017). Invited opinion article. Online at <https://theanalyticalscientist.com/fields-applications/beyond-stone-age-sample-prep>

### **Reviewed Conference Abstracts**

1. P. Baggott, I. Nazim, M. Shah, and **R. Martinez-Duarte**<sup>&</sup>, "Characterization of Triangular Tungsten Carbide Lattices Material Properties and Structural Changes in Manufacturing With Sustainable Materials", International Manufacturing Science and Engineering Conference, MSEC: Greenville, SC (2025). Undergraduate authors.
2. M. Howe, L. Mantilla, A. Indupally, and **R. Martinez-Duarte**<sup>&</sup>, "Optimization of Surface Roughness in the Electrodeposition Process", International Manufacturing Science and Engineering Conference, MSEC: Greenville, SC (2025).
3. Shivam Yadav and **R. Martinez-Duarte** "Characterizing recirculation in microfluidic devices to prevent dead volume" The International Conference on Dielectrophoresis: Dublin, Ireland (2024).
4. **R. Martinez-Duarte** "Towards Architecting Bacterial Cellulose", Engineering Living Systems Symposium, ACS Spring Meeting: San Diego (2022)
5. Megan Giacobbi and **R. Martinez-Duarte**, "Studying the dielectrophoretic behavior of the Trypanosoma brucei parasite", Council on Undergraduate Research (CUR) REU Symposium: October 25<sup>th</sup>, 2021. Undergraduate author, *REU Biophysics 2021 from Gonzaga University*.
6. Megan Giacobbi and **R. Martinez-Duarte**, "Studying the DEP behavior of the Trypanosoma brucei parasite" *Dielectrophoresis International Conference*, Flagstaff, 2021. Undergraduate author, *REU Biophysics 2021 from Gonzaga University*.
7. Amin Davarzani and **R. Martinez-Duarte**, "DEP separation of different Candida strains using 3D carbon electrodes" *Dielectrophoresis International Conference*, Flagstaff, 2021.

8. **R. Martinez-Duarte**, “Why 3D electrodes for Dielectrophoresis? A critical review on the fabrication techniques that can enable higher throughput in DEP devices” *Dielectrophoresis International Conference*, Flagstaff, 2021.
9. G. Diaz-Armas<sup>§</sup>, **R. Martinez-Duarte**, V. H. Perez Gonzalez, “Computational modeling of the electric field distribution towards exosome characterization” *Dielectrophoresis International Conference*, Flagstaff, 2021. Undergraduate author, *International collaboration with Tecnologico de Monterrey, Mexico*.
10. E. Barnett<sup>§</sup>, M. Vogel<sup>§</sup>, C. Hammond<sup>§</sup>, C. Bisbee<sup>§</sup>, M. Bynum<sup>§</sup>, A. Smith<sup>§</sup>, A. Baldwin<sup>§</sup>, D. Keck<sup>#</sup> and **R. Martinez-Duarte**, & “Dielectrophoresis to identify Candida strains” *Dielectrophoresis International Conference*, Flagstaff, 2020. Undergraduate student authors. Canceled due to COVID-19
11. **R. Martinez-Duarte** “Perspectives on selected Dielectrophoresis platforms for Particle Separation” *Annual meeting of the AES Electrophoresis Society at SciX*, Palm Springs, CA, 2019.
12. D. Keck<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup> “Light-induced Dielectrophoresis in the characterization of Candida cells” *Annual meeting of the AES Electrophoresis Society at SciX*, Palm Springs, CA, 2019.
13. S. Baddam<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup> “Dielectrophoresis characterization of K. xylinus” *Annual meeting of the AES Electrophoresis Society at SciX*, Palm Springs, CA, 2019.
14. E. Barnett<sup>§</sup>, D. Keck<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup> “3D Carbon-electrode dielectrophoresis to identify Candida dubliniensis” *Annual meeting of the AES Electrophoresis Society at SciX*, Palm Springs, CA, 2019. Undergraduate student authors.
15. E. Barnett<sup>§</sup>, M. Vogel<sup>§</sup>, C. Hammond<sup>§</sup>, C. Bisbee<sup>§</sup>, D. Keck<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup> “Carbon-electrode Dielectrophoresis to identify Candida strains” *Annual meeting of the AES Electrophoresis Society at SciX*, Palm Springs, CA, 2019. Undergraduate student authors.
16. E. Barnett<sup>§</sup>, M. Vogel<sup>§</sup>, C. Hammond<sup>§</sup>, C. Bisbee<sup>§</sup>, P. Jones<sup>§</sup>, D. Keck<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup> “Carbon-electrode Dielectrophoresis to Identify Candida strains” *235<sup>th</sup> ECS Meeting: Dallas, TX*, 2019. Undergraduate student authors.
17. C. Bisbee<sup>§</sup>, E. Barnett<sup>§</sup>, M. Vogel<sup>§</sup>, C. Hammond<sup>§</sup>, D. Keck<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup> “3D Carbon-electrode dielectrophoresis to identify Candida strains” *35<sup>th</sup> International Symposium on Microscale Separation and Bioanalysis: Corvallis, OR*, 2019. Undergraduate student authors.
18. D. Keck<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup> “A method to rapidly characterize the dielectrophoresis response of numerous single cells to determine the distribution of dielectric properties in the population” *35<sup>th</sup> International Symposium on Microscale Separation and Bioanalysis: Corvallis, OR*, 2019.

19. **R. Martinez-Duarte** “Perspectives on selected Dielectrophoresis platforms for Particle Separation” *35<sup>th</sup> International Symposium on Microscale Separation and Bioanalysis*: Corvallis, OR, 2019.
20. **R. Martinez-Duarte** “Manipulating microbial factories for nanomanufacturing” *Annual meeting of the AES Electrophoresis Society*: Atlanta, 2018.
21. C. Stuart<sup>§</sup>, E. Gullette<sup>§</sup>, M. Hammer<sup>§</sup>, M. G. Heustess<sup>§</sup>, A. Mills<sup>§</sup>, J. Duncan<sup>§</sup>, D. Keck<sup>#</sup>, M. Islam<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>** “Dielectrophoresis to concentrate Trypanosoma brucei” *Annual meeting of the AES Electrophoresis Society*: Atlanta, 2018. Undergraduate student authors.
22. D. Keck<sup>#</sup>, M. Islam<sup>#</sup>, **R. Martinez-Duarte<sup>&</sup>** “A Method for the sustainable synthesis of carbon fiber using Dielectrophoresis of Bacteria and Pyrolysis” *Annual meeting of the AES Electrophoresis Society*: Atlanta, 2018.
23. R. Natu<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>**, Determination of Particle Trajectory in Streaming Dielectrophoresis” *Annual meeting of the AES Electrophoresis Society*: Atlanta, 2018.
24. **R. Martinez-Duarte**, “Insight on Nanoweaving using Microbial Factories” 1<sup>st</sup> *Hispanic and Latinx Voices in Academia*: Clemson, SC (2018). Oral.
25. D. Keck<sup>#</sup>, M. Islam<sup>#</sup>, R. Natu<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>** “Dielectrophoretic characterization of candida species with 3D Carbon electrodes towards separation and species-specific diagnosis” *19<sup>th</sup> International Symposium on Field- and Flow-based Separations*: Columbia, SC (2018). Oral.
26. R. Natu<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>** “Dielectrophoresis based automated cell pick and place” *19<sup>th</sup> International Symposium on Field- and Flow-based Separations*: Columbia, SC (2018). Oral.
27. D. Keck<sup>#</sup>, J. Duncan<sup>§</sup>, M. Islam<sup>#</sup>, **R. Martinez-Duarte<sup>&</sup>** “A novel approach for the sustainable synthesis of carbon fibers using light-induced dielectrophoresis of bacteria” *Spring meeting of the Electrochemical Society*: Seattle, 2018. Oral. Undergraduate student authors.
28. S. A. Muhamed<sup>#</sup>, R. Natu<sup>#</sup>, D. Keck<sup>#</sup>, M. Islam<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>** “Micro-molded glassy carbon electrodes for high throughput dielectrophoresis” *Spring meeting of the Electrochemical Society*: Seattle, 2018. Oral.
29. E. Gullette<sup>§</sup>, M. Hammer<sup>§</sup>, M.G. Heustess<sup>§</sup>, A. Mills<sup>§</sup>, C. Stuart<sup>§</sup>, M. Islam<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>** “Carbon-electrode Dielectrophoresis to concentrate Trypanosoma brucei” *Spring meeting of the Electrochemical Society*: Seattle, 2018. Poster. *Creative Inquiry team.* Undergraduate student authors.
30. J. Gilmore, M. Islam<sup>#</sup>, R. Natu<sup>#</sup>, D. Keck<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>** “Characterization of Dielectrophoretic Response of Candida Cells using 3D carbon-electrode Dielectrophoresis” *Annual meeting of the AES Electrophoresis Society*: Minneapolis, 2017.

31. D. Keck<sup>#</sup>, M. Islam<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup> “A method for the sustainable synthesis of carbon fibers using dielectrophoresis of bacteria and pyrolysis” *Annual meeting of the AES Electrophoresis Society*: Minneapolis, 2017.
32. R. Natu<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup> “Automated selective cell manipulation using dielectrophoresis” *Annual meeting of the AES Electrophoresis Society*: Minneapolis, 2017.
33. R. Natu<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup> “Numerical model for streaming dielectrophoresis” *Annual meeting of the AES Electrophoresis Society*: Minneapolis, 2017.
34. M. Islam<sup>#</sup>, R. Natu<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup> “Characterization of streaming dielectrophoresis towards rapid particle separation” *Annual meeting of the AES Electrophoresis Society*: Minneapolis, 2017.
35. J. Duncan<sup>§</sup>, N. Hanson<sup>§</sup>, MG Heustess<sup>§</sup>, E. Kluttz<sup>§</sup>, F. Mitchell<sup>§</sup> and **R. Martinez-Duarte**<sup>&</sup>, “Studying the attraction of T. brucei to different materials and landscapes”. *Spring meeting of the Electrochemical Society*: New Orleans, 2017. Poster. *Creative Inquiry team*. Undergraduate student authors.
36. E. Gullette<sup>§</sup>, N. Hanson<sup>§</sup>, E. Kluttz<sup>§</sup>, C. Stuart<sup>§</sup>, M. Hammer<sup>§</sup>, K. Wallace<sup>§</sup>, D. Keck<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, “Studying the behavior of T. brucei under electric field gradients implemented using optoelectronic tweezers”. *Spring meeting of the Electrochemical Society*: New Orleans, 2017. Poster. *Creative Inquiry team* Honorable Mention in Student Poster Session among 70 posters from mostly graduate students.
37. J. Duncan<sup>§</sup>, MG Heustess<sup>§</sup>, M. Islam<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, “Carbon-electrode Dielectrophoresis for Concentrating Trypanosoma brucei”. *Spring meeting of the Electrochemical Society*: New Orleans, 2017. Poster. Third Place in Student Poster Session among 70 posters from mostly graduate students. *Creative Inquiry team* Undergraduate student authors.
38. Y. Yildizhan, M. Islam<sup>#</sup>, **R. Martinez-Duarte** and M. Elitas, “Characterization and separation of M1 and M2 type macrophages using 3D carbon electrode Dielectrophoresis”, *BioMEMS and Microfluidics: Technologies and Applications*: Boston, 2017. Poster. *International collaboration with Sabanci Universitesi, Turkey.*
39. J. Duncan<sup>§</sup>, M. Islam<sup>#</sup>, J. Gilmore<sup>\*</sup>, J. Gomez-Quinones, V. Perez-Gonzalez and **R. Martinez-Duarte**<sup>&</sup>, “The impact of different waveforms on particle trapping efficiency when using 3D carbon-electrode Dielectrophoresis”, *Annual meeting of the AES Electrophoresis Society*: San Francisco, 2016. Poster. *Resulting from Creative Inquiry work performed in summer.* Undergraduate student authors.
40. R. Natu<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, “Numerical model of streaming dielectrophoresis for stem cell sorting”, *Annual meeting of the AES Electrophoresis Society*: San Francisco, 2016. Poster. 2<sup>nd</sup> place in Student Poster Session among 25 posters.

41. M. Islam<sup>#</sup>, R. Natu<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, “Continuous particle separation using streaming dielectrophoresis”, *Annual meeting of the AES Electrophoresis Society*: San Francisco, 2016. Oral.
42. J. Gilmore<sup>\*</sup>, M. Islam<sup>#</sup>, and **R. Martinez-Duarte**<sup>&</sup>, “Separation of Candida cells using 3D carbon-electrode Dielectrophoresis”, *Annual meeting of the AES Electrophoresis Society*: San Francisco, 2016. Oral.
43. R. Martinez-Duarte, “Renewable Carbon Sources and Novel Technologies for the Manufacturing of Carbides” *ECS Spring Meeting*, San Diego, CA: May 30, 2016. Oral.
44. M. Islam<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, “Enrichment of small cell populations from large sample volumes using 3D Carbon-electrode Dielectrophoresis” *Annual Meeting of the AES Electrophoresis Society*: Salt Lake City, 2015. Oral.
45. M. Islam<sup>#</sup>, R. Natu<sup>#</sup> and **R. Martinez-Duarte**<sup>&</sup>, “Low cost Fabrication of Microchannels for Lab-on-a-Chip Applications” *Annual Meeting of the AES Electrophoresis Society*: Atlanta, 2014. Poster
46. **R. Martinez-Duarte**, “Carbon-electrode Dielectrophoresis for Sample Preparation”, *Annual Meeting of the AES Electrophoresis Society*, Atlanta, 2014.

#### **Prior to Clemson**

47. **R. Martinez-Duarte** and P. Renaud, “High throughput sample preparation using 3D carbon electrodes”, *Proceedings of the Annual Meeting of the AIChE/American Electrophoresis Society*: Pittsburgh, PA (11/2012).
48. **R. Martinez-Duarte** and P. Renaud, “Recent advances on glass-like carbon microfabrication”, NanoBioTech-Montreux: Montreux, Switzerland (2011).
49. **R. Martinez-Duarte**, F. Camacho-Alanis, A. Ros and P. Renaud, “DNA Concentration with 3D carbon electrodes”, *Proceedings of the Annual Meeting of the AIChE/American Electrophoresis Society*: Minneapolis, MN (11/2011).
50. **R. Martinez-Duarte** and M. Madou “Cell manipulation using carbon-electrode Dielectrophoresis”, NanoBioTech-Montreux: Montreux, Switzerland (2010).
51. **R. Martinez-Duarte** and M. Madou “The Integration of Dielectrophoresis and Centrifugal Microfluidics”, NanoBioTech-Montreux: Montreux, Switzerland (2010).
52. **R. Martinez-Duarte** and M. Madou, “Automated Label-free Cell Sorting using dielectrophoresis and centrifugal microfluidics” *Proceedings of the 42<sup>nd</sup> AACC Oak Ridge Conference – The impact of emerging diagnostic technologies*: San Jose, CA (05/2010).
53. **R. Martinez-Duarte** and M. Madou “A Novel Approach to Dielectrophoresis using Carbon electrodes” in *Proceedings of the Annual Meeting of the AIChE/American Electrophoresis Society*: Nashville, TN (10/2009).



54. **R. Martinez-Duarte**, R. Gorkin, K. Abi-Samra and M. Madou “The Integration of Dielectrophoresis on a CD-like Microfluidics Platform” in *Proceedings of the Annual Meeting of the AIChE/American Electrophoresis Society*: Nashville, TN (10/2009).
55. **R. Martinez-Duarte**, “Carbon MEMS (C-MEMS) for Dielectrophoresis Applications” California-Catalonia Alliance for Miniaturization Science and Engineering Session in the Symposium for Micro and Nano Engineering MNE, Barcelona, Spain: September 18, 2006).

**Online Editorial/Review Articles (Invited and reviewed)**

1. D. Keck<sup>#</sup>, J. Gilmore<sup>\*</sup>, M. Islam<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>**, “Emerging Techniques in the Fabrication of microfluidic devices”, Application focus of the AES Electrophoresis Society, August, 2017.  
[http://www.aesociety.org/areas/microfluidic\\_chips.php](http://www.aesociety.org/areas/microfluidic_chips.php)
2. J. Gilmore<sup>\*</sup> and **R. Martinez-Duarte<sup>&</sup>**, “Fabrication of microfluidic chips using Xurography”, Application focus of the AES Electrophoresis Society, August, 2017.  
[http://www.aesociety.org/areas/microfluidic\\_chips.php](http://www.aesociety.org/areas/microfluidic_chips.php)
3. M. Islam<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>**, “Fabrication of microfluidic chips using soft lithography”, Application focus of the AES Electrophoresis Society, August, 2017.  
[http://www.aesociety.org/areas/microfluidic\\_chips.php](http://www.aesociety.org/areas/microfluidic_chips.php)
4. R. Natu<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>**, Fabrication of microfluidic chips using SU-8 Photolithography”, Application focus of the AES Electrophoresis Society, August, 2017. [http://www.aesociety.org/areas/microfluidic\\_chips.php](http://www.aesociety.org/areas/microfluidic_chips.php)
5. J. Gilmore<sup>\*</sup> and **R. Martinez-Duarte<sup>&</sup>**, “Fabrication of microfluidic devices using Etching”, Application focus of the AES Electrophoresis Society, August, 2017.  
[http://www.aesociety.org/areas/microfluidic\\_chips.php](http://www.aesociety.org/areas/microfluidic_chips.php)
6. M. Islam<sup>#</sup> and **R. Martinez-Duarte<sup>&</sup>**, “Fabrication of paper microfluidic devices”, Application focus of the AES Electrophoresis Society, August, 2017.  
[http://www.aesociety.org/areas/microfluidic\\_chips.php](http://www.aesociety.org/areas/microfluidic_chips.php)
7. **R. Martinez-Duarte<sup>&</sup>**, “Micromanufacturing Technologies for Dielectrophoresis Applications”, Application focus of the AES Electrophoresis Society, September, 2013. [www.aesociety.org/areas/dielectrophoresis.php](http://www.aesociety.org/areas/dielectrophoresis.php)
8. **R. Martinez-Duarte<sup>&</sup>** and M. Madou, “3D Carbon-electrode Dielectrophoresis”, Application focus of the AES Electrophoresis Society, October, 2011.  
[www.aesociety.org/areas/dielectrophoresis.php](http://www.aesociety.org/areas/dielectrophoresis.php)
9. **R. Martinez-Duarte<sup>&</sup>**, “Easy and Inexpensive Fabrication of PDMS films”, Lab on a Chip Chips & Tips, 2012.
10. **R. Martinez-Duarte<sup>&</sup>** and M. Madou, “Quick and cheap syringe-tubing interfacing”, Lab on a Chip Chips & Tips, 2007.

## INVITED TALKS AND SEMINARS

### Conferences:

1. "Towards architecting bacterial cellulose from the bottom-up using electric fields" TMS Annual Meeting & Exhibition, Biological Materials Science Symposium: Orlando, 2024.
2. "Towards architecting bacterial cellulose from the bottom-up using electric fields" Annual Meeting of the AES Electrophoresis Society at SciX: Reno, 2023.
3. "Towards using microbial factories to print carbon nanowires" Carbon MEMS Conference: DTU Denmark, 2022.
4. "Robocasting of Tungsten Carbide Lattice electrodes", 3D printing-enabled polymeric composites and hybrid systems symposium, ACS Spring Meeting: San Diego (2022).
5. Panelist in STEM ALL IN Event, Clemson University (2022).
6. "Perspectives on selected DEP platforms for Selective Bioparticle manipulation in sample preparation" Health for the Billions – Affordable Technologies at the TEC.Nano International Conference, Monterrey, Mexico, 2019.
7. "Novel ways to fabricate carbonaceous materials from renewable resources" Carbon-MEMS: Advances and Challenges at the TEC.Nano International Conference, Monterrey, Mexico, 2019.
8. "Perspectives on selected Dielectrophoresis platforms for Particle Separation" *Annual meeting of the AES Electrophoresis Society at SciX*, Palm Springs, CA, 2019.
9. "Perspectives on selected Dielectrophoresis platforms for Particle Separation" *35<sup>th</sup> International Symposium on Microscale Separation and Bioanalysis*: Corvallis, OR, 2019.
10. "Multi-scale manufacturing of carbonaceous materials using bacteria and origami", India International Workshop on Nano/Micro 2D-3D Fabrication, Manufacturing of Electronic-Biomedical Devices & Applications, IIT Mandi, India, Nov. 1, 2018.
11. "Expanding the toolbox to process carbonaceous materials: from photolithography to robocasting and origami folding", Micro and NanoEngineering 2018, Copenhagen, Denmark, Sep. 25, 2018.
12. "Integrating technologies for innovative carbon manufacturing" 3<sup>rd</sup> International Conference on Carbon MEMS, San Diego, June 11, 2018.

13. Panelist in Plenary Discussion Panel: The Doctoral Journey. Call Me Doctor Summit, Clemson University, December 1, 2017.
14. Panelist in Plenary Discussion Panel: The Doctoral Journey. El Camino a Clemson, Clemson University, September 30, 2017.
15. "Strengthening the weak link in Microfluidics using carbon-electrode Dielectrophoresis", ITP Symposium: Minneapolis, MN September 19, 2016.
16. "Bioelectrokinetics for Advanced Manufacturing", SciX Conference: Minneapolis, MN, September 21, 2016.
17. "3D Carbon-electrode Dielectrophoresis in Sample Preparation" SciX Conference, Providence, RI: Sep. 29, 2015.
18. "On the potential of Dielectrophoresis for Microfluidic Preparative Biology Applications", Pittcon, New Orleans: March 2015.
19. "Carbon-electrode Dielectrophoresis and other Applications" 1<sup>st</sup> International Conference on Carbon Micro-Electromechanical Systems, Irvine: September 2014.
20. "Carbon-electrode Dielectrophoresis for Bioparticle Manipulation", ECS Spring Meeting, Orlando, May 2014.
21. "Carbon Microfabrication and Microfluidics" ASME Student Professional Development Conference, Clemson, March 2014.
22. "Practical Platforms for High throughput sample preparation using 3D carbon-electrode DEP" ITP Symposium on Electro- and liquid-phase separation techniques, Baltimore, MD: Oct. 1, 2012.
23. "Microfabrication of Glass-like Carbon and related applications" Annual Review of the EPFL Center of MicroNanotechnology, Lausanne, Switzerland, May 11, 2011.

#### **Seminars:**

1. "Architecting Carbonaceous Electrodes" DTU, Sep. 11, 2024.
2. "Architecting Carbonaceous Electrodes" Chalmers University of Technology, Sep 3, 2024.
3. "Architecting Carbonaceous Electrodes" IMDEA: Madrid, June 26, 2024.
4. "Architecting Carbonaceous Electrodes" Rice University, Feb. 2, 2023.
5. "Novel ways to fabricate carbonaceous materials from synthetic or renewable resources" Universidad de Guanajuato, June 16, 2022.
6. "Dielectrophoresis Systems for Bioparticle Manipulation", Michigan Tech University, April 29, 2022.
7. "Dielectrophoresis Systems for Bioparticle Manipulation", Oregon Health and Sciences University, Virtual, Nov 5, 2021.

8. "Sample Preparation Technologies" Tecnologico de Monterrey, Virtual, May 6, 2021.
9. "Ways to fabricate carbonaceous architectures, and their applications" TU Darmstadt Paper Institute, Germany, June 27, 2019.
10. "Ways to fabricate carbonaceous architectures, and their applications" Karlsruhe Institute of Technology, Germany, June 28, 2019.
11. "DEP for selective bioparticle manipulation in sample preparation and nanomanufacturing" IBM Labs, Switzerland, June 24, 2019.
12. "DEP for selective bioparticle manipulation in sample preparation and nanomanufacturing" ETH Zurich, Switzerland, June 25, 2019.
13. "DEP for selective bioparticle manipulation in sample preparation and nanomanufacturing" EPFL, Switzerland, June 21, 2019.
14. "Some curious ways to manufacture carbonaceous materials" University of Cambridge, UK, December 15, 2017
15. "From Healthcare Technologies to Bionanomanufacturing", Denmark Technical University (DTU), December 11, 2017
16. "From Healthcare Diagnostics to BioNanomanufacturing", National Institute of Standards and Technology (NIST), April 26, 2017.
17. "The Multiscale Manufacturing Laboratory at Clemson University", Tecnologico de Monterrey, Mexico: June 12, 2016.
18. "From Healthcare Diagnostics to Bionanomanufacturing" Florida International University, Miami: Sep. 18, 2015.
19. "Activities in the Multiscale Manufacturing Laboratory", CINVESTAV Monterrey, Mexico: Aug 11, 2015.
20. "Carbon-electrode Dielectrophoresis for Bioparticle Manipulation", Institut Clement Ader, Toulouse, France: June 4, 2015.
21. "Carbon-electrode Dielectrophoresis for Practical Applications" Institute of Bioengineering of Catalonia, IBEC, Barcelona, Spain, Nov. 22, 2012.
22. "Carbon-electrode Dielectrophoresis for Practical Applications" University of Leeds, Leeds, England, Nov. 20, 2012.
23. "Carbon and Microfluidic Technologies for Practical Applications" Rochester Institute of Technology, Rochester, NY, Nov. 8, 2012.
24. "Carbon and Microfluidic Technologies for Practical Applications" Rutgers University, New Brunswick, NJ, Nov. 6, 2012.
25. "Carbon-electrode Dielectrophoresis" Arizona State University, Tempe, AZ, Oct. 18, 2011.
26. "CarbonDEP for Cell separation" Tecnologico de Monterrey, Monterrey, Mexico, August 22, 2008.

## PATENTS

1. "Carbon and Carbide Origami", United States, US2019/0112191 A1, **R. Martinez-Duarte**, M. Islam<sup>#</sup> and J. Flach<sup>§</sup>.
2. "Carbon molds for use in the Fabrication of Bulk Metallic Glasses Parts and Molds", United States, US 2012/0125071 A1, WO2010111701A1, J. Schroers, G. Kumar, M. Madou and **R. Martinez-Duarte**.

## OTHER CREATIVE WORKS

1. *Producer* of "Day of the Dead", a 1-hour video production, both in English and Spanish with close-captions in both languages, about history and traditions of Day of the Dead as well as a virtual exhibition of altars. Available at [www.clemsondayofthedeath.org](http://www.clemsondayofthedeath.org) (October 2020)

## SPONSORED RESEARCH

1. "Engineers for a Global System: Global Learning and Engineering+Language Programs" Undergraduate International Studies and Foreign Language Program, US Department of Education, PI, \$200,000, 2024-2026.
2. "REU Site: Nature's machinery through the prism of Physics, Biology, Chemistry, and Engineering" US NSF, Co-PI, \$479,349, 09/2023-09/2026.
3. "AccelNet-Implementation: Broadening Carbon Ring" US NSF, Co-PI, \$2,000,000, 10/2023-09/2027.
4. "Architecting Bacterial Cellulose" TIGER Grant, PI, \$15,000, 2022.
5. Industry Funding, PI, \$57,000, 2022.
6. "Engineers for a Global System: Global Learning and Engineering+Language Programs" Undergraduate International Studies and Foreign Language Program, US Department of Education, Senior Personnel, \$200,000, 2020-2022.
7. Industry Funding, PI, \$100,000, 2020-2021.
8. "Assessing the conditions to synthesize bacterial cellulose fibers in a microfluidics reactor and evaluating their value as precursors to carbon nanofibers" Clemson University Core Incentivized Access, PI, \$13,815, 2019.
9. "Promoting cross-cultural physics and engineering teams for today's operational challenges" 100k strong in the Americas Innovation Fund, Co-PI, \$62,501, 2015.
10. "Sustainable, Multi-functional Materials: Tailoring the microstructure of tungsten carbide derived from biopolymer-based composites", Hitachi High Technologies Student Fellowship, PI, \$20,000, 2016.

11. "BioNanomanufacturing of Carbide Aerogels", SC Space Grant Program, PI, \$36,670, 2015.
12. "Fluorescence Activated Cell Sorting for Intercollegiate Research and Education", AFOSR DURIP, Senior Investigator, Equipment Purchase, \$175,100, 2015.
13. "Collaborative medical technology development for Tanzania" Clemson TIGER grant, Co-PI, \$20,000, 2014-2015.
14. Creative Inquiry project "Nano 3D printing using bacteria", 2018-Present, \$10,500.
15. Creative Inquiry project "3D printing Architected Electrodes", 2019-Present \$11,250.
16. Creative Inquiry project "Lab-on-a-chip and Microfluidics to identify the cause of disease in clinical diagnostics", 2019-Present, \$18,400.
17. Creative Inquiry project "Carbides from Epoxy-Nanoparticle Composites", 2015-2018, \$8,600.
18. Creative Inquiry project "Origami-inspired manufacturing of composite parts", 2015-2018, \$5,900.
19. Creative Inquiry project "Low cost microfluidics to detect Chagas disease in a rural setting", 2014-2019, \$49, 475.
20. Creative Inquiry project "3D Printing the Food of the Future", 2016-2019, \$5,450.
21. Clemson University EUREKA program for Undergraduate Research, 2015-2018, \$5,600.
22. Summer Program for High School Research Interns, 2018, \$1,000.
23. Travel grant, NSF Workshop Faculty Development Needs for Advanced Manufacturing, \$500 (2014).

## **MENTORING AND ADVISING**

### **Post-doctoral**

1. Dr. Jordon Gilmore. 2015-2017. Now Associate Professor in Bioengineering at Clemson University
  - a) 4 journal papers
  - b) 1 reviewed conference proceedings
  - c) 3 reviewed conference abstracts

### **PhD Graduates**

1. Dr. Monsur Islam. "Advanced Manufacturing of Lightweight Porous Carbide Shapes using Renewable Resources". Graduated 05/2018.

- a) 24 journal publications (12 as first author), 20 conference presentations, 2 book chapters (2 as first author), 3 invention disclosures, 1 patent, 3 reviewed web articles.
  - b) Eastman Chemical Research Award in ME, 2018.
  - c) ME Departmental Award for Graduate Research, 2017.
  - d) Hitachi High Technologies Fellowship, 2016.
  - e) International Research Internship at Tecnologico de Monterrey, Mexico. Summer 2017.
  - f) Runner up, ME Graduate Research Poster Competition 2015.
2. Dr. Rucha Natu, "Investigating the use of Streaming and Robotic Dielectrophoresis to enable continuous cell sorting and automatic cell transfer in sample preparation". Graduated 09/2018.
- a) 9 Journal publications (5 as first author), 13 conference presentations, 2 book chapters, 2 Invention disclosures, 1 reviewed web article.
  - b) College of Engineering and Applied Sciences Outstanding Teaching Assistant Award, 2018.
  - c) Mechanical Engineering Outstanding Teaching Assistant Award, 2018.
  - d) 2<sup>nd</sup> Place. Poster Competition. AES Annual meeting 2016.
  - e) Internship at the US FDA, Summer 2017.
3. Dr. Devin Keck, "Multifunctional Platforms of the Electrical Manipulation and Characterization of Microorganisms". Graduated 05/2021.
- a) 5 Journal publication, 15 conference presentations.
  - b) International Research Internship at Tecnologico de Monterrey, Mexico. Summer 2017.
4. Shivam Yadav, PhD, started 01/2022
5. Melanie Howe, PhD, started 08/2022
6. Manasi Shah, PhD, Started 01/2022
7. Tushar Sarker, PhD, Started 01/2025

### **MS Graduates**

1. Emanuele Giolgi, "Fabricating Suspended carbon structures using SU-8 Photolithography". Graduated 11/2016.
  - a) 1 reviewed conference proceeding, 1 conference presentation. Currently at Volvo, Charleston.
2. Sam Muhamed, "Assessing Temperature differences on a sample heated in a tube furnace under vacuum". Graduated 08/2018.
  - a) 1 conference presentation. Currently at The Aluminum Association

3. Sindora Baddam, "A Study of the Synthesis of Cellulose by the Bacteria *Komagataeibacter xylinus* (*K. xylinus*) when Under the Action of an Electric Field in a Microfluidic Reactor". Graduated 12/2020.
  - a) 1 conference presentation and 1 journal manuscript under review.
4. J. Bentley Bevis, "Additive Manufacturing of Porous Tungsten Carbide Structural Electrode Components using Robocasting". Graduated 05/2024.
  - a) 2 conference presentations, 1 journal manuscript under review.

#### **Undergraduate Student Honor Thesis**

1. Rob Smith "Mechanical Properties of carbonized nonwoven cellulose fibers in experimental and computational settings. Clemson University, Mechanical Engineering" Spring 2021.
2. Grayson Cliff, Investigation of Bacterial Cellulose-Derived Carbon Origami for Structural Electrodes" Spring 2024.
3. Suma Ravi, expected Fall 2024.

**UNDERGRADUATE STUDENT RESEARCH ADVISING** (75+ different students from 10 different academic programs since 2014)

#### **Creative Inquiry (CI) Undergraduate Research Program**

1. **Nano 3D printing using bacteria.** Fall 2018-Present. Averages 2 students per semester. 4 students total from Mechanical Engineering and Microbiology. **Highlights:** 1 journal paper published (2024).
2. **3D printing Architected Electrodes.** Fall 2019-Present. Averages 4 students per semester. 4 students total from Mechanical Engineering and Chemical Engineering. **Highlights:** 4 reviewed conference proceedings. 1 submitted (2024)
3. **Lab-on-a-chip and Microfluidics to identify the cause of disease in clinical diagnostics.** Fall 2019-Present. Averages 7 students per semester. 7 students total from Microbiology, Biochemistry, Biological Sciences, Health Sciences, Bioengineering, or Mechanical Engineering. **Highlights:** 4 conference posters at international conferences.
4. **Low cost microfluidics to detect Chagas disease in a rural setting.** Spring 14-Spring 2019. Averages 5 students per semester. 26 students total from Mechanical Engineering, Bioengineering, Chemical Engineering, Biological Sciences, Health Sciences, Genetics, Nursing or Veterinary Sciences. **Highlights:** 1 journal paper, 1 reviewed conference proceeding, 7 conference posters in international conferences, and a 3<sup>rd</sup> place and



Honorable mention in the Poster session of ECS Spring Meeting 2017 from 70 mostly graduate posters.

5. **Carbides from Epoxy-Nanoparticle Composites.** Fall 15-Spring 2018. Averages 3 students per semester. 6 students total from Mechanical, Chemical Engineering or Materials Science. **Highlights:** 1 reviewed conference proceeding, 1 oral conference presentation.
6. **Origami-inspired manufacturing of composite parts** Fall 15-Spring 2019. Averages 2 students per semester. 6 students total from Mechanical Engineering or Materials Science. **Highlights:** 1 journal publication, 1 patent.
7. **3D Printing Food**, Fall 16-Spring 2019. Averages 2 student per semester. 5 students total from Mechanical Engineering, Industrial Engineering or Materials Science. **Highlights:** 1 Oral conference presentation, 1 conference poster, 2 reviewed conference proceedings.

#### **International Research Internship at Tecnologico de Monterrey, Mexico**

- Cell Lysis, Summer 2017 (1 student)
- Clinical Shadowing, Summer 2017 (1 student)

#### **EUREKA Research Program for Rising 1<sup>st</sup> year students**

1. Origami-inspired Manufacturing, Summer 2015 (2 students)
2. 3D Printing the food of the future, Summer 2016, 2017 (2 students)
3. Writing with Bugs, Summer 2016, Summer 2018 (2 students)
4. Sustainability of Bacterial Cellulose, Summer 2023 (2 students)

#### **Summer Program for High School Research Interns**

1. Origami with Bacterial Cellulose, Summer 18 (1 student)
2. Heterogeneous Origami, Summer 18 (1 student)

#### **NSF REU (Research experiences for Undergraduates)**

1. Biophysics, Summer 2021 (1 student)
2. Biophysics, Summer 2024 (1 student)

## **PROFESSIONAL, UNIVERSITY AND PUBLIC SERVICE**

#### **Clemson University Service**

Department:

1. Faculty Secretary (2013-2014)

2. Member, Honors, Awards and Seminars Committee (2013 - 2014)
3. Member, Research Committee (2014 - 2015)
4. Member, Faculty Search Committee (2014-2015)
5. Member, Research Committee (2015-2016)
6. Chair, International Committee (2016-2017)
7. Chair, International Committee (2017-2018)
8. Chair, International Committee (2018-2019)
9. Chair, International Committee (2019-2020)
10. Chair, International Committee (2020-2021)
11. Chair, International Committee (2021-2022)
12. Member, International Committee (2022-2023)
13. Member, International Committee (2023-2024)
14. Member, Lecturer Search Committee (2019-2020)
15. Member, Lecture Search Committee (2021-2021)
16. Member, Inclusive Excellence Committee (2020-2021)
17. Chair, Inclusive Excellence Committee (2021-2022)
18. Chair, Inclusive Excellence Committee (2022-2023)
19. Chair, Inclusive Excellence Committee (2023-2024)
20. Chair, Events Committee (2018-2019)
21. Chair, Events Committee (2019-2020)

College:

1. *Member*, Search Committee for CECAS Global Engagement Manager (2021)
1. *Member*, Leadership & Service Award Selection Committee (2021)
2. ***Faculty Advisor, Clemson University Chapter of Society of Hispanic Professional Engineers, Invited (2021-Present)***
3. *Chair*, CECAS Global Engagement Committee, *Elected* (2024-2026)
4. *Chair*, CECAS Global Engagement Committee, *Elected* (2022-2024)
5. *Chair*, CECAS Global Engagement Committee, *Elected* (2020-2022)
6. *Chair*, CECAS Global Engagement Committee, *Elected* (2018-2020)
7. *Member*, CES Grand Challenges Committee, *Appointed* (2015)

University:

1. *Member*, Task Force on the Visiting Scholar Experience to Clemson University (2022-2023).
2. *Ex-officio member with voting rights*, Research Committee, Faculty Senate (2022-2023).
3. *Reviewer and Panel Member*, National Scholars Program (2023, 2024)
4. *Judge*, Clemson Design-a-Thon (2023)
5. *Member*, Search Committee for Office of Teaching Effectiveness and Innovation OTEI (2022)

6. *Member*, Search Committee for Office of Global Engagement Director for Global Engagement (2021)
7. *Mentor*, Inaugural Launch Team, Clemson Design-A-Thon, *Invited*, 2021.
8. *Member*, President's Social Justice & Equity Task Force, *Appointed*, 2020.
9. *Chair*, Commission on Latino Affairs, *Elected*. 2021-2022.
10. *Vice-Chair*, Commission on Latino Affairs, *Elected*. 2020-2021.
11. *Chair*, Organizing Committee "Dia de los Muertos"  
[www.clemsondayofthedeath.org](http://www.clemsondayofthedeath.org) at the Botanical Garden, 2019-2022.
12. *Member*, Council on Global Engagement, *Appointed*, 2020-2022.
13. *Member*, Council on Global Engagement, *Appointed*, 2018-2020.
14. *Member*, Council on Global Engagement, *Elected*, 2022-2024.
15. *Member*, Commission on Latino Affairs. *Elected*. 2020-2023.
16. *Member*, President's Commission on Latino Affairs. *Elected*. 2017-2020.
17. Steering Committee for Mexico Initiatives, 2018. *Appointed*.
18. Organizing Committee, "Dia de los Muertos" at the Botanical Gardens, 2018.
19. Planning committee of the Men of Color Summit 2017. *Appointed*.
20. Organizing committee of the El Camino a Clemson 2017. *Invited*.

### **Professional Service**

#### **Leadership**

- *Head*, Strategic Planning Working Group, The International Conference in Dielectrophoresis (2024-2027). *Elected*.
- *President*, AES Electrophoresis Society (2018-2020). *Elected*.
- *Vice-President*, AES Electrophoresis Society (2016-2018). *Elected*.
- *Executive Vice-President*, AES Electrophoresis Society (2015). *Appointed*
- *Councilor*, AES Electrophoresis Society (2011-2014). *Elected*.

#### **Meeting Organizer**

- *Co-chair*, 4<sup>th</sup> International Conference on Dielectrophoresis, Flagstaff, AZ (2020-2021).
- *Co-Chair*, 3<sup>rd</sup> International Conference on Carbon MEMS: "Expanding the Frontiers of Carbon MEMS", San Diego (2018)
- *Lead Organizer*, ECS Engineering Carbon Hybrids – Carbon Electronics 3 Symposium, Seattle (2018)
- *Lead Organizer*, ECS Engineering Carbon Hybrids – Carbon Electronics 2 Symposium, San Diego (2016)
- *Co-Chair*, Annual Meeting of the AES Electrophoresis Society, Atlanta (2014)
- *Co-Chair*, 1<sup>st</sup> International Conference on Carbon Micro-electromechanical Systems (2014)
- *Co-Chair*, Indo-US Workshop on Fabronics, Irvine, CA (2009)

- *General Chair*, BioMEMS Symposium, Monterrey, Mexico (2005)

### **Editor**

- *Topical Collection, Micro and Nanoscale Electrokinetics*, Micromachines Journal, 2023-Present
- *Special Issue “Micromachines for Dielectrophoresis III”* Micromachines Journal. 2023.
- *Member of Editorial Board, Micromachines* (2021-Present)
- *Member of Editorial Board, Frontiers Lab on a Chip* (2022-Present)
- *Special Issue “Dielectrophoresis Conference Proceedings”* Electrophoresis, 2021
- *Special Issue “Electrokinetically-Driven Microfluidic Devices: Fundamentals and Trends in Biomedical and Biotechnological Applications”* Frontiers in Bioengineering and Biotechnology, 2021.
- *Special Issue “Advances and Innovations in Microfluidics”* Frontiers in Bioengineering and Biotechnology, 2021.
- *Special Issue “Micromachines for Dielectrophoresis II”* Micromachines Journal. 2021.
- *Special Issue “Micromachines for Dielectrophoresis”* Micromachines Journal. 2020.
- *ECS Transactions, Engineering Carbon Hybrids – Carbon Electronics 3*, Volume 85, Issue 1 (2018).
- *ECS Transactions, Engineering Carbon Hybrids – Carbon Electronics 2*, Volume 72, Issue 1 (2016)

### **Professional Committees/Technical Committees**

- Organizing Committee, Institute of Physics Dielectrophoresis Conference, Surrey, England (2018)
- Technical Committee, 17<sup>th</sup> International Meeting on Chemical Sensors, Vienna, Austria (2018)
- National Organizing Committee, ITP Symposium, Minneapolis (2016).

### **MS Thesis/Doctoral Dissertation Referee/Examiner**

- *Examiner*, Invited, Indian Institute of Technology, Bhubaneswar (2022)
- *Opponent*, Invited, Technical University of Denmark (DTU) (2022)
- *External Evaluator*, Invited, University of Surrey, England (2021)
- *Opponent*, Invited, Technical University of Denmark (DTU) (2017)
- *Examiner*, Invited, Indian Institute of Technology, Kanpur (2017)
- *Examiner*, Invited, Indian Institute of Technology, Kanpur (2015)
- *Committee Member*, Invited, Tecnologico de Monterrey, Mexico (2015)

### **Selected Session Organizer**

- Session Chair, SciX Annual Meeting of the AES Electrophoresis Society, Cincinnati (2022)
- Session Co-chair, Carbon-MEMS: Advances and Challenges at the TEC.Nano International Conference, Monterrey Mexico (2019)
- Award Session Co-chair, Annual Meeting of the AES Electrophoresis Society, Palm Springs (2019)
- Session Co-chair, Micro and Nanoengineering Conference, Copenhagen (2018)
- Award Session Co-Chair, Annual Meeting of the AES Electrophoresis Society, Atlanta (2018)
- Award Session Chair, Annual Meeting of the AES Electrophoresis Society, Minneapolis (2017)
- Award Session Chair, SciX, Minneapolis (2016)
- Award Session Chair, Annual Meeting of the AES Electrophoresis Society, San Francisco (2016)
- Award Session Chair, Annual Meeting of the AES Electrophoresis Society, Salt Lake City (2015)
- Session Chair, Microfluidics and Miniaturization, ITP Symposium, Minneapolis (2016)
- Session Chair, “Microfabrication and Nanotechnology”, Annual Meeting of the Society of Hispanic Professional Engineers, Detroit (2014)
- Session Chair, “Electrokinetics for Sample Preparation”, Annual Meeting of the AES Electrophoresis Society, San Francisco (2013)
- Session Co-Chair “DNA Electrokinetics”, Annual meeting of the AES Electrophoresis Society, Pittsburgh (2012)
- Session Co-Chair “Biomedical Diagnostics”, Annual meeting of the AES Electrophoresis Society, Minneapolis (2011)

#### **Selected Poster Judge**

- SciX, Palm Springs (2019)
- SciX conference, Atlanta (2018)
- SciX conference, Minneapolis (2016)
- Annual Meeting of the AES Electrophoresis Society, San Francisco (2016)
- SciX conference, Providence, RI (2015)
- Annual Meeting of the AES Electrophoresis Society, San Francisco (2013)
- Annual meeting of the AES Electrophoresis Society, Pittsburgh (2012)
- Annual meeting of the AES Electrophoresis Society, Minneapolis (2011)

#### **Evaluator**

- Tenure and Promotion, University of California, Irvine (2024)
- Tenure and Promotion, University of California, San Diego (2021)

#### **Panel Reviewer for**

- NSF
- NASA
- 100k Strong in the Americas
- Kentucky Science & Engineering Foundation
- Hitachi High Technologies Fellowship at Clemson University
- SC Space Grant \$25k Research Grant Internal Competition at Clemson University.
- The ACS Petroleum Research Fund

**Referee** for the journals (selected)

- Nature
- Additive Manufacturing
- Electrophoresis
- Lab on a Chip
- Sensors and Actuators B
- Physical Chemistry Chemical Physics
- Diagnostics
- ASME Journal of Nanotechnology
- Microfluidics and Nanofluidics
- Biomicrofluidics
- Analytical Chemistry
- Journal of Visualized Experiments
- Journal of the Electrochemical Society
- ACS Applied Materials & Interfaces
- Electroanalysis
- JACS (Journal of the American Chemical Society)
- Nature Microsystems & Nanoengineering
- Chemical Reviews
- Journal of the American Ceramics Society
- Micromachines
- Carbon
- Emergent Materials
- Manufacturing Letters
- Therapeutic Advances in Infectious Diseases

Book Proposal **Reviewer**

- John Wiley and Sons

**Public Outreach**

Day of the Dead Celebration, Clemson University & SC Botanical Gardens (2018, 2019, 2020, 2021, 2022, 2023, 2024) [www.clemsondayofthedead.org](http://www.clemsondayofthedead.org) or in Spanish [www.clemsondiadelosmuertos.org](http://www.clemsondiadelosmuertos.org)

Family Weekend, Clemson University (2018)

Family Weekend, Clemson University (2017)

Host, Group of students at risk, Roswell Presbyterian Church, Atlanta GA (2016)

Volunteer with EMAGINE!, Artisphere Greenville (2016)

Host, 4-H Youth Mentoring & Development Program (2015)

## **PROFESSIONAL DEVELOPMENT**

1. Clemson Teaching Excellence Conference: Teaching in the Age of AI, Spring 2024.
2. Proposal Writing Seminar through Clemson EPIC, May 2023.
3. NSF CMMI Game Changer Academy, 2023
4. Conflict Resolution, Feb 4, 2022. Sponsored by the Commission on Latino Affairs and the Clemson University Staff Ombuds.
5. TIGERS ADVOCATE, Oct 19, 2021. A men's faculty group interested in supporting equality throughout the university.
6. OTEI Faculty Learning Community, Global Digital Citizenship, Sep 1, 2020-Apr 30, 2021
7. OGE-CECAS International Virtual Exchange Workshop, Spring 2021.
8. Intercultural Development Inventory Workshop, Spring 2021.
9. OGE International Virtual Exchange Workshop, Fall 2020.
10. OTEI Faculty Learning Community, STEM Teaching and Learning, Unique challenges and Mechanisms for Effective Teaching, Sep 1, 2018-Apr 30, 2019.
11. Clemson University Think<sup>2</sup>, Intensive 4-day course on Critical Thinking Pedagogy, June 2018.
12. Clemson CAREER Academy, Spring 2018.
13. Awareness and Empathy LGBTQ+ Ally Training, December 2018.
14. NSF CMMI CAREER Proposal Writing Workshop, March 2018.
15. Green Zone Training to support and empower student veterans at Clemson University, November 2017.
16. American Council on Education COIL (Collaborative Online International Learning) Leadership Academy. Invited and partially sponsored by CU Office of Global Engagement, April 2017.
17. OTEI (Office of Teaching Effectiveness and Innovation at Clemson University) Seminar on "Document Teaching Effectiveness", April 2014.
18. OTEI Seminar on "Teaching and Managing Large Classes", August 2014.
19. Clemson Symposium on Diversity, March 2014.

***Last updated November 25, 2024.***