TANVIR FAROUK

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DEPARTMENT OF MECHANICAL ENGINEERING
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EDUCATION

Drexel University, Philadelphia, PA, USA (2009)
Ph.D., Mechanical Engineering, Summa Cum Laude

University of Toronto, Toronto, ON, Canada (2004)
M.A.Sc., Mechanical Engineering, Magna Cum Laude

Bangladesh University of Engineering and Technology, Dhaka, Bangladesh (2001)
B.Sc., Mechanical Engineering, Magna Cum Laude

PROFESSIONAL EXPERIENCE

University of South Carolina, Columbia, SC

Graduate Program Director, Department of Mechanical Engineering (8/2019 – Present)

Associate Professor, Department of Mechanical Engineering (8/2018 – Present)

Assistant Professor, Department of Mechanical Engineering (8/2012 – 7/2018)

Princeton University, Princeton, NJ

Associate Research Scientist, Department of Mechanical and Aerospace Engineering (2011 – 2012)

Post doctoral Scholar, Department of Mechanical and Aerospace Engineering (2009 – 2011)

Drexel University, Philadelphia, PA

Research Assistant, Department of Mechanical Engineering & Mechanics (2005 – 2009)

University of Toronto, Toronto, ON

Research Assistant, Department of Mechanical & Industrial Engineering (2003 – 2004)

Bangladesh University of Engineering and Technology, Dhaka, Bangladesh

Lecturer, Department of Mechanical Engineering (2001 – 2002)

AWARDS & ACHIEVEMENTS

- Office of Naval Research Summer Faculty Fellow, 2021
- NASA Group Achievement Award – Outstanding Contributions to Advanced Composites "Surface functionalization using atmospheric pressure plasma discharge" 2020
- Ralph R. Teetor Educational Award, Society of Automotive Engineers 2019
- Board Member (Elected) of the American Society of Gravitational and Space Research 2018
- Young Investigator Award, University of South Carolina 2018
- Member of the Advisory Board of Department of Energy, Nuclear Energy University Program on "*Development and experimental benchmark of computational models to predict cladding*

temperature and vapor removal from used nuclear fuel canisters during drying operations" 2017

- Breakthrough Rising Star Faculty Award, University of South Carolina 2016
- Advanced Support for Innovative Research Excellence (ASPIRE) Award, University of South Carolina 2016, 2013
- Member of National Aeronautics and Space Administration's (NASA's) Science and Definition Team for International Space Station Combustion Experiments 2014
- Irvin Glassman Young Investigator Award, Combustion Institute 2013
- National Science and Engineering Research Council of Canada (NSERC) Postdoctoral Fellowship 2009
- George Hill Jr. Fellowship 2007
- Drexel University Research Excellence Award 2007

PUBLICATIONS

JOURNAL PUBLICATIONS

1. Perry, J., Knight, T., **Farouk, T.,** "Experimental evaluation of drying spent nuclear fuel for dry cask storage through vacuum and forced helium dehydration" *Nuclear Technology* (In Preparation).
2. Tahiyat, M., Stephens, J., Kolobov, V., **Farouk, T.,** "Striations in moderate pressure dc driven glow discharge" *Journal of Physics D: Applied Physics*, 55, (2022) 085201.
3. Saha, S., Knight, T., Khan, J., **Farouk, T.,** "A global model for predicting vacuum drying of used nuclear fuel assemblies" *Nuclear Technology*, (2021) (https://doi.org/10.1080/00295450.2021.1936863).
4. Ahmed, S., Aghdam, A., **Farouk., T.,** "Multi-dimensional numerical investigation of NO_x formation in a McKenna-driven flow tube configuration" *Combustion and Flame*, 223, (2021), 511 - 524.
5. **Farouk, T.,** Won, S., Dryer, F., "Sub-millimeter sized multi-component jet fuel surrogate droplet combustion: Physicochemical preferential vaporization effects" *Proceedings of the Combustion Institute*, 38, (2021), 3313 – 3323.
6. Sultana, N., Khan, M., Mahamud, R., Saadatzi, M., Sultana, P., **Farouk, T.,** Quirino, R., Banerjee, S., "Fabrication and characterization of non-equilibrium plasma treated PVDF nanofiber membrane-based sensors" *Sensors*, 21, (2021), 4179.
7. Aghdam, A., **Farouk, T.,** "Role of negative hydroxyl ions on the electron generation and breakdown during plasma formation in liquid water" *Plasma Sources Science and Technology*, 30, (2021), 065025.
8. Xu, Y., **Farouk, T.,** Hicks, M., Avedisian, C.T., "Initial diameter effects on combustion of unsupported equi-volume n-heptane/iso-octane mixture droplets: Experimental observation and detailed numerical modeling" *Combustion and Flame*, 220, (2020), 82 – 91.
9. Mahamud, R., **Farouk, T.,** "Ion number density quantification utilizing pulsing frequency in negative differential resistance (NDR) regime of microplasma operation" *IEEE Transactions on Plasma Science*, 48, (2020), 2736 – 2741.
10. Sarikaya, I., Tahiyat, M., Harik, R., **Farouk, T.,** "Surface functionalization of carbon composites

using atmospheric pressure air plasma jet" *International Journal of Adhesion and Adhesives*, 99, (2020), 102570.

11. Aghdam, A., **Farouk, T.,** "Multiphysics simulation of initial stage of plasma discharge formation in liquids" *Plasma Sources Science and Technology*, 29, (2020), 025011.
12. Saha, S., Khan, J., **Farouk, T.,** "Numerical study of evaporation assisted hybrid cooling for thermal powerplant application" *Applied Thermal Engineering*, 166, (2020), 114677
13. Hoque, S., Tahiyat, M., Abbas, N., Saha, S., **Farouk, T.,** "Atmospheric pressure dielectric barrier discharge for siloxane reformation" *Journal of Physics D: Applied Physics*, 53, (2020), 015202-1-9.
14. Ju, Y., Reuter, C., Yehia, O., Won, S., **Farouk, T.,** "Dynamics of cool flames" *Progress in Energy and Combustion Science*, 75, (2019), 100787-1-39.
15. Alam, F., Aghdam, A., Dryer, F., **Farouk, T.,** "Oscillatory cool flame combustion behavior of submillimeter sized n-alkane droplet under near limit conditions" *Proceedings of the Combustion Institute*, 37, (2019), 3383 – 3391.
16. **Farouk, T.,** Dietrich, D., Dryer, F., "Three stage cool flame droplet burning behavior of n-alkane droplets at elevated pressure conditions" *Proceedings of the Combustion Institute*, 37, (2019), 3353 – 3361.
17. Tahiyat, M., Knight, T., **Farouk, T.,** "Plasma optical emission spectroscopy for water vapor quantification and detection in dry cask storage of nuclear fuels" *Review of Scientific Instruments,* 89, (2018), 116108-1 – 3.
18. Alam, F., Won, S. H., **Farouk, T.,** "Ozone assisted cool flame combustion of sub-millimeter sized n-alkane droplets at atmospheric and higher pressure" *Combustion and Flame,* 195, (2018), 220 - 231.
19. Asgari, N., Ahmed, S., **Farouk, T.,** Padak, B., "NO_x formation in post-flame gases from syngas/air combustion at atmospheric pressure" *International Journal of Hydrogen Energy*, 42, (2017), 24569 – 24579.
20. **Farouk, T.,** Xu, Y., Avedisian, C. T., Dryer, D., "Combustion characteristics of primary reference fuel blends: single stage high temperature combustion to multistage "cool" flame behavior" *Proceedings of the Combustion Institute*, 36, (2017), 2585 – 2594.
21. **Farouk, T.,** Dietrich, D., Alam, F., Dryer, D., "Isolated n-decane droplet combustion – dual stage and single stage transition to "cool flame" droplet burning" *Proceedings of the Combustion Institute*, 36, (2017), 2523 - 2530.
22. Alam, F., Haas, F., **Farouk, T.,** Dryer, D., "Influence of trace nitrogen oxides on natural gas oxidation: flow reactor measurements and kinetic modeling" *Energy and Fuel*, 31, (2016), 2360 – 2369.
23. Ahmed, S., Santner, J., Dryer, F., Padak, B., **Farouk, T.,** "Computational study of NO_x formations at conditions relevant to gas turbine operation part II: NO_x in high hydrogen content fuel combustion at elevated pressure" *Energy and Fuel*, 30, (2016), 7691 - 7703.
24. Santner, J., Ahmed, S., **Farouk, T.,** Dryer, F., "Computational study of NO_x formation at conditions relevant to gas turbine operation, part I" *Energy and Fuel*, 30, (2016), 6745 – 6755.
25. Liu, F., Alam, F., Xu, Y., Dryer, F., Avedisian, C.T., **Farouk, T.,** "Combustion characteristics of butanol isomers in multiphase droplet configurations" *Combustion and Flame*, 169, (2016), 216 – 228.

26. Mahamud, R., **Farouk, T.,** "Suppression of self pulsing regime of DC driven micro plasma discharge" *Applied Physics Letters*, 49, (2016), 204101-1-6.
27. Mahamud, R., **Farouk, T.,** "Ion kinetics and self-pulsing DC driven non-thermal micro plasma discharge at atmospheric and higher pressure" *Journal of Physics D: Applied Physics*, 49, (2016), 145202-1 – 12.
28. Alam, F., Dryer, F., **Farouk, T.,** "Effectiveness of xenon as fire suppressant under microgravity combustion environment" *Combustion Science and Technology*, 188, (2016), 145 – 165.
29. Alam, F., Liu, Y., Avedisian, C.T., Dryer, F., **Farouk, T.,** "A detailed numerical simulation of spherically symmetric n-butanol droplet combustion and comparisons with experimental data" *Proceedings of the Combustion Institute*, 35, (2015), 1693 – 1700.
30. **Farouk, T.,** Hicks, M., Dryer, F., "Multistage oscillatory "Cool Flame" behavior for isolated alkane droplet combustion in elevated pressure microgravity conditions" *Proceedings of the Combustion Institute*, 35, (2015), 1701 – 1708.
31. **Farouk, T.,** "Flameless cool combustion in multiphase configuration" *Procedia Engineering*, 105, (2015), 520 – 528.
32. Dietrich, D., Nayagam, V., Hicks, M., Ferkul, P., Dryer, F., **Farouk, T.,** Shaw, B., Choi, M., Liu, F., Avedisian, C., Williams, F., "Droplet combustion experiments aboard the international space station" *Microgravity Science and Technology*, 26, (2014), 65 - 76.
33. Dryer, F., Hass, F., Santner, J., **Farouk, T.,** Chaos, M., "Elucidating chemical kinetics of complex reaction-advection-diffusion systems: application and modeling of flow reactor and related kinetics experiments" *Progress in Energy and Combustion Science*, 44, (2014), 19 - 39.
34. **Farouk, T.,** Antao, D., Farouk, B., "Criticality of external circuit in simulating atmospheric pressure direct current micro-glow discharge" *IEEE Transactions on Plasma Science*, 42, (2014), 1870 - 1879.
35. **Farouk, T.,** Dryer, F., "Isolated *n*-heptane droplet combustion in microgravity: "cool flames" – two stage combustion" *Combustion and Flame*, 161, (2014), 565 - 581.
36. Liu, Y., **Farouk, T.,** Savas, A., Dryer, F., Avedisian, C. "On the spherically symmetrical combustion of methyl decanoate droplets and comparisons with detailed numerical modeling" *Combustion and Flame*, 60, (2013), 641 – 655.
37. Guo, H., Sun, W., Haas, F., **Farouk, T.,** Dryer, F., Ju, Y., "Measurement of H_2O_2 in low temperature dimethyl ether (DME) oxidation" *Proceedings of the Combustion Institute*, 34, (2013), 573 – 581.
38. **Farouk, T.,** Liu, Y., Savas, A., Avedisian, C. Dryer, F., "Sub-millimeter sized methyl butanoate droplet combustion: Microgravity experiments and detailed numerical modeling" *Proceedings of the Combustion Institute*, 34, (2013), 1609 – 1616.
39. **Farouk, T.,** Dryer, F., "On the extinction of alcohol droplet combustion under microgravity conditions" *Combustion and Flame*, 159, (2012), 3208 – 3223.
40. Dooley, S., Won, S., Heyne, J., **Farouk, T.,** Ju, Y., Dryer, F., "The experimental evaluation of a methodology to surrogate fuel formulation for the emulation of combustion kinetic phenomena by a theory of real fuel oxidation" *Combustion and Flame*, 159, (2012), 1444 – 1466.
41. **Farouk, T.,** Dryer, F., "Tethered methanol droplet combustion in carbon dioxide enriched environment under microgravity conditions" *Combustion and Flame*, 159, (2012), 200 – 209.
42. **Farouk, T.,** Dryer, F., "Microgravity droplet combustion: Effect of tethering fiber on burning rate and flame structure" *Combustion Theory and Modelling*, 15, (2011), 487 – 515.
43. **Farouk, T.,** Farouk, B., Fridman, A., "Computational studies of atmospheric pressure methane-hydrogen micro glow discharge" *IEEE Transactions on Plasma Science,* 38, (2010), 73 – 85.

44. **Farouk, T.,** Farouk, B., Gutsol, A., "Simulation of species and temperature separation in the Ranque-Hilsch vortex tube using the large eddy simulation technique" *International Journal of Heat and Mass Transfer*, 52, (2009), 3320 – 3333.
45. Wilson, A., Staack, D., **Farouk, T.**, Gutsol, A., Fridman, A., Farouk, B., "Self rotating DC atmospheric pressure discharge over a water-surface electrode" *Plasma Sources Science and Technology*, 17, (2008), 045001-1 – 12.
46. **Farouk, T.,** Farouk, B., Gutsol, A., Fridman, A., "Atmospheric pressure methane – hydrogen micro plasma discharge for thin film deposition" *Journal of Physics D: Applied Physics*, 41, (2008), 175202 -1 – 19.
47. **Farouk, T.,** Farouk, B., Gutsol, A., Fridman, A., "Atmospheric pressure radio frequency glow discharges in argon: effect of external circuit parameters" *Plasma Sources Science and Technology*, 17, (2008), 035015-1 – 15.
48. **Farouk, T.**, Farouk, B., "Large eddy simulations of the flow field and temperature separation in the Ranque-Hilsch vortex tube" *International Journal of Heat and Mass Transfer*, 50, (2007), 4724 – 4735.
49. **Farouk, T.**, Farouk, B., Staack, D., Gutsol, A., Fridman, A., "Modeling of direct current micro-plasma discharges in atmospheric pressure hydrogen" *Plasma Sources Science and Technology*, 16, (2007), 619 – 634.
50. Wu, J., **Farouk, T.,** Ward, C., "Pressure dependence of the contact angle" *Journal of Physical Chemistry B*, 111, (2007), 6189 – 6197.
51. **Farouk, T.**, Farouk, B., Staack, D., Gutsol, A., Fridman. A., "Simulation of DC atmospheric pressure argon micro glow-discharge" *Plasma Sources Science and Technology*, 15, (2006), 676-688.

REPORTS

- Knight, T., Cooper, N., Shalloo, M., **Farouk, T.,** Wang, Y., Khan, J., Smith, R., "Aluminium-clad spent nuclear fuel engineering scale drying experiments", (2019) Technical Report INL/EXT-19-56017 (https://doi.org/10.2172/1572393).
- Knight, T., **Farouk, T.,** Khan, J., Roberts, E., Tulenko, J., Tarbutton, J., "Experimental determination and modeling of used fuel drying by vacuum and gas circulation for dry cask storage", (2019), Technical Report 14-7730, (https://doi.org/10.2172/1491788).

PATENTS

- Li, C., Khan, J., Huang, X., **Farouk, T.,** Dawas, R., Chang, W., Wang, P., Alwazzan, M., Huang, G., "On-demand sweating-boosted air cooled heat pipe condensers" US Patent Application No. 16/824,777.
- Tahiyat, M., Knight, T., **Farouk, T.,** "Water vapor quantification methodology during drying of spent nuclear fuel" US Patent Application No. 16/550,419.
- Tahiyat, M., Hoque, S., **Farouk, T.,** "Siloxane removal off landfill gas using dielectric barrier discharge plasma" US Patent Application No. 17/032,123.
- Mahamud, R., **Farouk, T.,** "Suppression of self-pulsing regime of DC driven microplasma discharge" Patent No. US 10542613B2 (2020).
- **Farouk, T.,** Won, S. H., Dryer, F., "Methodology/system for reforming liquid fuel to tailor engine combustion-emissions" Patent No. US 10704509B2 (2020).

BOOK ARTICLE

- **Farouk, T.,** Farouk, B., Gutsol, A., Fridman, A., "Simulation of atmospheric pressure non-thermal Plasma discharges for surface decontamination applications" Plasma Assisted Decontamination of Chemical and Biological Agents, Editors: S. Guceri and V. Smirnov, Springer, NY 2008, pp. 291 – 300.

SELECTED CONFERENCE PUBLICATIONS & PRESENTATIONS

1. Wahabi, A., Tahiyat, M., Won, S., **Farouk, T.,** "Characterization of an atmospheric pressure misty plasma discharge" *74th Annual Gaseous Electronics Conference*, Huntsville, Alabama, October 4 – 8, 2021.
2. Tahiyat, M., Heagan, L., Hill, J., Guyton, B., Berge, N., **Farouk, T.,** Hoque, S., "Assessment of dielectric barrier discharge non-thermal plasma for the removal of siloxanes from landfill gas" *74th Annual Gaseous Electronics Conference*, Huntsville, Alabama, October 4 – 8, 2021.
3. Tahiyat., M., Stephens, J., Kolobov, V., **Farouk, T.,** "Self-excited standing striations in moderate pressure dc nitrogen glow discharge" *74th Annual Gaseous Electronics Conference*, Huntsville, Alabama, October 4 – 8, 2021.
4. Aghdam, A., **Farouk, T.,** "Electron generation during plasma formation in liquid water: The role of negative hydroxyl ions" *74th Annual Gaseous Electronics Conference*, Huntsville, Alabama, October 4 – 8, 2021.
5. Kolobov, V., Tahiyat, M., **Farouk, T.,** Xu, K., "Computational and experimental studies of plasma stratification in noble gases and nitrogen" *73rd Annual Gaseous Electronics Conference*, San Diego, California, October 5 – 9, 2020.
6. Saha, S., Khan, J., **Farouk, T.,** "Study of hybrid wet/dry cooling with different surface morphology: Analyses on pressure drop and thermal performances" *Proceeding of the ASME 2020 Heat Transfer Summer Conference*, Orlando, Florida, July 12 – 15, 2020.
7. Saha, S., **Farouk, T.,** "Simulation of methanol-air hydrothermal flames during supercritical water oxidation: Impact of kinetic parameters" *Spring Technical Meeting of the Eastern States Section of the Combustion Institute*, Columbia, South Carolina, March 8 – 11, 2020.
8. Ahmed, S., Aghdam, A., Pleis, J., Geiger, R., **Farouk, T.,** "Electric field assisted reduction of NO_x emission: A numerical study" *Spring Technical Meeting of the Eastern States Section of the Combustion Institute*, Columbia, South Carolina, March 8 – 11, 2020.
9. Davis, K., Wang, D., Chiodo, A., Cremer, M., Won, S., **Farouk, T.,** Dryer, F., "Modeling of thermophysical properties and chemical kinetics for direct-fired sCO_2 cycles" *Spring Technical Meeting of the Eastern States Section of the Combustion Institute*, Columbia, South Carolina, March 8 – 11, 2020.
10. Aghdam, A., **Farouk, T.,** "A volume of fluid (VOF) based approach for modeling plasma discharge in multi-fluid configuration" *72nd Gaseous Electronic Conference*, College Station, Texas, October 28 – November 1, 2019.
11. Belk, G., Yaaghi, I., **Farouk, T.,** "Characterization of high-pressure carbon dioxide glow discharge" *72nd Gaseous Electronic Conference*, College Station, Texas, October 28 – November 1, 2019.
12. Aghdam, A., Viparelli, E., **Farouk, T.,** "Implementing a shallow water mathematical modeling approach for simulating plasma interaction in multiphase configuration" *72nd Gaseous Electronic Conference*, College Station, Texas, October 28 – November 1, 2019.

13. Tahiyat, M., Won, S., **Farouk, T.,** "Determination of OH radical concentration in high water content low pressure dc glow discharge using laser induced fluorscence" *72nd Gaseous Electronic Conference*, College Station, Texas, October 28 – November 1, 2019.
14. Tahiyat, M., **Farouk, T.,** "Striations in dc driven discharges in nitrogen" *72nd Gaseous Electronic Conference*, College Station, Texas, October 28 – November 1, 2019.
15. Perry, J., Khan, J., **Farouk, T.,** Tulenko, J., Niemoller, A., Knight, T., "Used fuel drying by vacuum and forced gas circulation for dry cask storage" *American Nuclear Society Winter Meeting and Expo*, Washington DC, November 17 – 21, 2019.
16. Saha, S., Tikadar, A., Khan, J., Knight, T., **Farouk, T.,** "Can an analytical model be employed for simulating used fuel vacuum drying process?" *American Nuclear Society Winter Meeting and Expo*, Washington DC, November 17 – 21, 2019.
17. Tikadar, A., Saha, S., **Farouk, T.,** Khan, J., "CFD framework for used fuel vacuum drying application" *American Nuclear Society Winter Meeting and Expo*, Washington DC, November 17 – 21, 2019.
18. Sarikaya, I., Tahiyat, M., Harik, R., **Farouk, T.,** Connell, J., Gilday, P., "Plasma surface functionalization of AFP manufactured composites for improved adhesive bond performance" *Society of Manufacturing and Process Engineering*, Charlotte, North Carolinas, May 20 – 23, 2019.
19. Saha, S., Ahmed, S., **Farouk, T.,** "Numerical investigation on hydrothermal flames of supercritical methanol combustion" *11th U.S. National Combustion Meeting*, Pasadena, California, March 24 – 27, 2019.
20. **Farouk, T.,** Won, S., Dryer, F., "Investigating the role of preferential vaporization during sub-millimeter sized muli-component jet fuel surrogate droplet combustion" *11th U.S. National Combustion Meeting*, Pasadena, California, March 24 – 27, 2019.
21. Ahmed, S., Aghdam, A., **Farouk, T.,** "Effects of pulsating flow field on NO and radially inhomogeneous NO_2 distribution in a multi-dimensional numerical investigation of Mckenna-driven flow tube configuration" *11th U.S. National Combustion Meeting*, Pasadena, California, March 24 – 27, 2019.
22. Ahmed, S., Alam, F., **Farouk, T.,** "Experimental measurements and kinetic modeling of NO_x formation for synthetic natural gas combustion under gas turbine relevant conditions" *11th U.S. National Combustion Meeting*, Pasadena, California, March 24 – 27, 2019.
23. Aghdam, A., **Farouk, T.,** "Plasma discharge development in dissimilar multi-liquid configuration" *71st Annual Gaseous Electronics Conference*, Portland, Oregon, November 5 – 9, 2018.
24. Aghdam, A., **Farouk, T.,** "Multiphysics modeling of plasma discharge in liquids: Simulation of plasma initiation under linear ramp and nanosecond pulse condition" *71st Annual Gaseous Electronics Conference*, Portland, Oregon, November 5 – 9, 2018.
25. Tahiyat, M., Abbas, N., **Farouk, T.,** Hoque, S., "Removal of siloxanes from landfill gases with the application of dielectric barrier discharge plasma" *71st Annual Gaseous Electronics Conference*, Portland, Oregon, November 5 – 9, 2018.
26. Alam, F., Aghdam, A., Dryer, F., **Farouk, T.,** "Oscillatory cool flame behavior of submillimeter sized n-heptane droplets" *34th Annual Meeting of the American Society of Gravitational and Space Research*, Bethesda, Maryland, October 31 – November 3, 2018.

27. **Farouk, T.,** Won, S., Dryer, F., "Investigating the role of preferential vaporization during submillimeter sized multicomponent jet fuel surrogate droplet combustion" *34th Annual Meeting of the American Society of Gravitational and Space Research*, Bethesda, Maryland, October 31 – November 3, 2018.

28. Aghdam, A., Ahmed, S., Pleis, J., Geiger, R., **Farouk, T.,** "Effect of electric field on NOx emission in electric field assisted combustion: A numerical study" *37th International Symposium on Combustion*, Dublin, Ireland, July 29 – August 3, 2018.

29. Shalloo, M., Knight, T., Khan, J., **Farouk, T.,** Tulenko, J., "Modeling the drying of a mock used fuel assembly with COBRA-SFS Cycle-4-18597" Annual Waste Management Conference, Phoenix, Arizona, March 18-22, 2018.

30. **Farouk, T.,** Dietrich, D., Dryer, F., "Three stage quasi-steady droplet burning behavior of n-alkane droplets at elevated pressure conditions: Hot, warm and cool flame combustion" *Spring Technical Meeting of the Eastern States Section of the Combustion Institute*, State College, Pennsylvania, March 4 – 7, 2018.

31. Ahmed, S., Dasgupta, A., Dryer, F., **Farouk, T.,** "Multidimensional numerical investigation of NO_x formation in a burner coupled flow tube configuration" *Spring Technical Meeting of the Eastern States Section of the Combustion Institute*, State College, Pennsylvania, March 4 – 7, 2018.

32. Alam, F., Ahmed, S., Dryer, F., **Farouk, T.,** "Kinetic study of NO_x formation for synthetic natural gas combustion under gas turbine relevant condition" *Spring Technical Meeting of the Eastern States Section of the Combustion Institute*, State College, Pennsylvania, March 4 – 7, 2018.

33. Alam, F., Aghdam, A., Dryer, F., **Farouk, T.,** "Computational study of oscillatory cool flame dynamics for submillimeter sized n-heptane droplet" *Spring Technical Meeting of the Eastern States Section of the Combustion Institute*, State College, Pennsylvania, March 4 – 7, 2018.

34. Tahiyat, M., **Farouk, T.,** "DC driven low pressure glow discharge in high water vapor content: A characterization study" *70th Annual Gaseous Electronics Conference*, Pittsburgh, Pennsylvania, November 6 – 10, 2017.

35. Shalloo, M., Knight, T., Khan, J., **Farouk, T.,** Tulenko, J., "Vacuum drying experiments using a mock used fuel assembly" American Nuclear Society Transaction, Vol 117, Issue 1, 108 – 110, 2017.

36. **Farouk, T.,** Dryer, F., "n-Heptane droplet combustion in helium diluent substituted ambient at elevated pressure conditions: Observations of multistage cool flame burning behavior" *33rd Annual Meeting of the American Society of Gravitational and Space Research*, Seattle, Washington, October 24 – 28, 2017.

37. **Farouk, T.,** Dryer, F., "Simulation of multi-component surrogate fuel droplets representative of Jet-A fuel" *33rd Annual Meeting of the American Society of Gravitational and Space Research*, Seattle, Washington, October 24 – 28, 2017.

38. Alam, F., Dryer, F., **Farouk, T.,** "Non-premixed – partially premixed to diffusive burning: Initial transients during direct establishment of multiphase cool flame burning" *33rd Annual Meeting of the American Society of Gravitational and Space Research*, Seattle, Washington, October 24 – 28, 2017.

39. Sultana, Q., Mahamud, R., Sadatzi, S., Hassan, M., Banerjee, S., **Farouk, T**., Khan, M., "Effect of corona plasma on piezoelectric behavior of PVDF nanofiber membrane" *Advances in Functional Materials Conference*, Los Angeles, California, August 14 – 17, 2017.

40. Mahamud, R, **Farouk, T.,** "Kinetic modeling of striations in N_2 discharge" *Proceedings of the 23rd International Symposium on Plasma Chemistry*, Montreal, Canada, July 30 – August 4th, 2017.

41. Charchi, A., **Farouk, T.,** "Multi-physics simulation of the initial stage of plasma discharge in liquids" *Proceedings of the 23rd International Symposium on Plasma Chemistry*, Montreal, Canada, July 30 – August 4th, 2017.

42. Saha, S., Mahamud, R., Khan, J., **Farouk, T.,** "Simulation of sweating/evaporation boosted convective heat transfer under laminar condition" *Proceedings of ASME 2017 Heat Transfer Summer Conference*, Bellevue, Washington, USA, July 9 – 14, 2017.

43. Mahamud, R., Kolobov, V., **Farouk, T.,** "Simulations of striations in DC glow discharges in nitrogen" *The 44th International Conference on Plasma Science*, Atlantic City, New Jersey, May 21 – 25, 2017.

44. Charchi, A., **Farouk, T.,** "Multi-physics modeling and simulation of electrical breakdown in liquid medium" *The 44th International Conference on Plasma Science*, Atlantic City, New Jersey, May 21 – 25, 2017.

45. Xu, Y., **Farouk, T.,** Shen, Y., Hicks, M., Avedisian, C., Xie, X., Reeves, A., Dryer, F., "Comprehensive study of the initial diameter for combustion of n-heptane/iso-octane mixture droplets" *10th U.S. National Combustion Meeting*, College Park, Maryland, April 23 – 26, 2017.

46. Ahmed, S., Dasgupta, A., Dryer, F., **Farouk, T.,** "Multidimensional numerical investigation of NO_x formation in burner coupled flow tube configuration: NO_x kinetics in post, pre and flame locations" *10th U.S. National Combustion Meeting*, College Park, Maryland, April 23 – 26, 2017.

47. Alam, F., Dryer, F., **Farouk, T.,** "Cool flame combustion of sub-millimeter sized higher n-alkane droplets at atmospheric condition" *10th U.S. National Combustion Meeting*, College Park, Maryland, April 23 – 26, 2017.

48. **Farouk, T.,** Dryer, F., "Extinction characteristics of isolate n-alkane fuel droplets during low temperature combustion" *10th U.S. National Combustion Meeting*, College Park, Maryland, April 23 – 26, 2017.

49. **Farouk, T.,** Dryer, F., "Extinction characteristics of isolated n-alkane fuel droplets during low temperature cool flame burn" *32nd American Society for Gravitational Space Research Conference*, Cleveland, Ohio, October 26 – 29, 2016.

50. Alam, F., Dryer, F., **Farouk, T.,** "Combustion of sub-millimeter sized n-alkane droplets" *32nd American Society for Gravitational Space Research Conference*, Cleveland, Ohio, October 26 – 29, 2016.

51. Alam, F., Dryer, F., **Farouk, T.,** "Droplet combustion modeling of sooting fuels: Implementation of phenomological soot model and comparison of experimental observations and predictions" *32nd American Society for Gravitational Space Research Conference*, Cleveland, Ohio, October 26 – 29, 2016.

52. **Farouk, T.,** "n-Decane droplet combustion – dual stage combustion and single stage "Cool Flame" burning"*31st American Society for Gravitational Space Research Conference*, Alexandria, Virginia, November 11 – 14, 2015.

53. Charchi, A., **Farouk, T.,** "Simulation of plasma discharge in liquids: A detailed two-phase fluid approach" *68th Annual Gaseous Electronics Conference,* Honolulu, Hawaii, October 12 – 16, 2015.

54. Mahamud, R., **Farouk, T.,** "Suppression of instability of high-pressure DC micro-plasma operating in the negative differential resistance (NDR) regime" *68th Annual Gaseous Electronics Conference,* Honolulu, Hawaii, October 12 – 16, 2015.

55. Ahmed, S., Santner, J., Dryer, F., **Farouk, T.,** "Comprehensive kinetic model for predicting NO_x during hydrogen content fuel combustion at elevated pressure" *9th U.S. National Combustion Meeting*, Cincinnati, Ohio, May 17 – 20, 2015.

56. Santner, J., Ahmed, S., **Farouk, T.,** Dryer, F., "Computational study of NO_x formation at conditions relevant to gas turbine operating conditions" *9th U.S. National Combustion Meeting*, Cincinnati, Ohio, May 17 – 20, 2015.

57. **Farouk, T.,** Dryer, F., "Combustion characteristics of primary reference fuel (PRF) blends droplets: single stage high temperature combustion to multistage cool flame behavior" *9th U.S. National Combustion Meeting*, Cincinnati, Ohio, May17 – 20, 2015.

58. Liu, F., Alam, F., Xu, Y., Dryer, F., Avedisian, C. T., **Farouk, T.,** "Sub-millimeter droplet burning of butanol isomers in standard atmospheric ambient without convection" *9th U.S. National Combustion Meeting*, Cincinnati, Ohio, May 17 – 20, 2015.

59. Alam, F., Dryer, F., **Farouk, T.,** "Ozone assisted "cool flame" combustion of sub-millimeter n-heptane droplets at atmospheric and higher pressure" *9th U.S. National Combustion Meeting*, Cincinnati, Ohio, May 17 – 20, 2015.

60. Alam, F., Dryer, F., **Farouk, T.,** "Ozone assisted "cool flame" combustion of sub-millimeter n-heptane droplets at atmospheric and higher pressure" *9th U.S. National Combustion Meeting*, Cincinnati, Ohio, May 17 – 20, 2015.

61. Charchi, A., **Farouk, T.,** "A two-phase multi-physics model for simulating plasma discharge in liquids"*67th Annual Gaseous Electronics Conference,* Raleigh, North Carolina, November 3 – 7, 2014.

62. Mahamud, R., **Farouk, T.,** "Modeling of non-equilibrium and non-thermal plasma discharge in air: Three temperature modeling approach"*67th Annual Gaseous Electronics Conference,* Raleigh, North Carolina, November 3 – 7, 2014.

63. Mobli, M., **Farouk, T.,** "High pressure micro glow discharge: Detailed approach to gas temperature modeling"*67th Annual Gaseous Electronics Conference,* Raleigh, North Carolina, November 3 – 7, 2014.

64. **Farouk, T.,** Fahd, E., Dryer, F., "Droplet combustion characteristics of primary reference fuel (PRF) blends: Single stage high temperature combustion to multistage cool flame behavior"*30th American Society for Gravitational Space Research Conference,* Pasadena, California, October 23 – 27, 2014.

65. Fahd, E. **Farouk, T.,** "Cool flame burning of sub-millimeter sized droplets" *30th American Society for Gravitational Space Research Conference,* Pasadena, California, October 23 – 27, 2014.

66. Mahamud, R. **Farouk, T.,** "Modes of oscillation in DC driven high pressure micro plasma discharges" *41st IEEE International Conference on Plasma Science,* Washington DC, May 25 – 29, 2014.

67. Fahd, E., **Farouk, T.,** Dryer, F., "Effectiveness of xenon as fire suppressant under microgravity combustion environment" *Fall Technical Meeting of the Eastern States Section of the Combustion Institute,* Clemson, South Carolina, October 13 – 16, 2013, Pages 1 – 12.
68. **Farouk, T.,** Haas, F., Dryer, F., "Non-ideality of flow tube experiments for reaction kinetics" *Fall Technical Meeting of the Eastern States Section of the Combustion Institute,* Clemson, South Carolina, October 13 – 16, 2013, Pages 1 – 16.
69. **Farouk, T.,** Liu, Y., Fahd, E., Avedisian, C. T., Dryer, F., "Butanol droplet combustion: detailed numerical modeling and microgravity experiments" *Fall Technical Meeting of the Eastern States Section of the Combustion Institute,* Clemson, South Carolina, October 13 – 16, 2013, Pages 1 – 15.
70. Mahamud, R., **Farouk, T.,** "Self pulsing non-equilibrium plasma discharge at atmospheric and higher pressure" *66th Annual Gaseous Electronics Conference,* Princeton, New Jersey, September 30 – October 4, 2013.
71. Mobli, M., Mahamud, R., **Farouk, T.,** "High pressure micro plasma discharge: effect of conjugate heat transfer" *IEEE Pulsed Power & Plasma Science,* San Francisco, California, June 16 – 21, 2013.
72. Dooley, S., Dryer, F., **Farouk, T.,** Ju, Y., Won, S., "Reduced kinetic models for surrogate aviation fuels" *6th European Combustion Meeting,* Lund University, Sweden, June 25 – 28, 2013, Pages 1 – 6.
73. **Farouk, T.,** Dryer, F., "Isolated alkane droplet combustion in microgravity: "Cool Flames" " *8th US National Combustion Meeting of the Combustion Institute*, Salt Lake City, Utah, May 19 – 22, 2013, Paper# 070HE-0166, Pages, 1 -13.
74. Grumstrup, T., Marchese, T., Dryer, F., **Farouk, T**., "Contributions of thermal and prompt NO_x chemistry on NO_x formation near igniting oxygenated liquid fuel droplets" *8th US National Combustion Meeting of the Combustion Institute*, Salt Lake City, Utah, May 19 – 22, 2013, Paper# 070HE-0123, Pages, 1 -14.
75. Dooley, S., Dryer, F., **Farouk, T.,** Ju, Y., Won, S., "Reduced kinetic models for the combustion of jet propulsion fuels" *51st AIAA Aerospace Sciences Meeting*, January 7-10, 2013, Grapevine, Texas, Paper# AIAA 2013-0158, Pages 1 – 20.
76. Farouk, T., Dryer, F., "A numerical study on the extinction characteristics of alcohol droplets under microgravity conditions" *50st AIAA Aerospace Sciences Meeting*, January 9-12, 2012, Nashville, Tennessee, Paper# AIAA 2012-01252, Pages 1 –9.
77. **Farouk, T**., Dryer, F. L., "On the extinction characteristics of alcohol droplet combustion under microgravity conditions – a numerical study" *Fall Technical Meeting of the Eastern States Section of the Combustion Institute,* Storrs, Connecticut, October 9 – 12, 2011, Paper# 026SP-0219, Pages 1 – 10.
78. **Farouk, T**., Dooley, S., Dryer, F. L., "Large eddy simulation of turbulence and surface catalysis interaction in a variable pressure flow reactor" *Fall Technical Meeting of the Eastern States Section of the Combustion Institute,* Storrs, Connecticut, October 9 – 12, 2011, Paper# 026OT-0221, Pages 1 -7.
79. Haas, F., **Farouk, T.,** Chaos, M., Burke, M., Dryer, F., "Rate coefficients for $H+O_2+CO_2 \rightarrow HO_2 + CO_2$ determined in a new high-pressure laminar flow reactor" *Fall Technical Meeting of the Combustion Institute,* Storrs, Connecticut, October 9 – 12, 2011, Paper# 026RK-0213, Pages 1 – 7.
80. **Farouk, T.,** Dryer, F., "Methanol droplet combustion in carbon dioxide enriched environments: Extinction characteristics" *7th US National Combustion Meeting of the Combustion Institute*, Atlanta, Georgia, March 20 – 23, 2011, Paper# 1D-04, Pages 1 – 7.

81. Serinyel, Z., Dooley, S., **Farouk, T.,** Jahangrian, S., Curran, H., Dryer, F., "A pyrolytic flow reactor study of *iso*-propanol" *7th US National Combustion Meeting of the Combustion Institute*, Atlanta, Georgia, March 20 – 23, 2011, Paper# 3A-04, Pages 1 – 7.
82. Dooley, S., **Farouk, T.,** Dryer. F. L., "Gas phase decomposition of methyl formate" *Preprint Paper, American Chemical Society, Division of Fuel Chemistry,* 2010, 55 (1), 1-3.
83. Farouk, T., Farouk, B., "The fluid mechanics of atmospheric pressure discharges" *Proceedings of the 13th Asian Congress of Fluid Mechanics*, December 17 -21, 2010, Dhaka Bangladesh, Paper# ACFM2010-Key-01, Pages 1 – 12.
84. **Farouk, T.,** Dryer, F., Marchese, A., Vaughn, T., Kroenlein, K., "A numerical study on the impact of supporting fibers on tethered droplet ignition under microgravity conditions" *Spring Technical Meeting of the Western States Section of the Combustion Institute,* Boulder, Colorado, March 21 – 23, 2010, Paper# 10S-30, Pages 1 – 20.
85. **Farouk, T.,** Farouk, B., Gutsol, A., Fridman, A., "Two-dimensional simulation of atmospheric pressure methane-hydrogen micro discharge for thin film deposition" *19th International Symposium on Plasma Chemistry*, Bochum Germany, July 26 – 31, 2009, 4 pages on compact disc.
86. Farouk, B., **Farouk, T.,** Staack, D., Gutsol, A., Fridman, A., "Atmospheric pressure micro plasma discharge for net shape deposition and micro fabrication" *Proceedings of 2008 National Science Foundation CMMI Engineering Research and Innovation Conference,* Knoxville, Tennessee, January 7 – 10, 2008, 14 pages on compact disc.
87. Farouk, B., Staack, D., **Farouk, T.,** Gutsol, A., Fridman, A., "Atmospheric plasma micro discharges for high-rate deposition" *Proceedings of the International Conference on Mechanical Engineering (ICME 2007)*, Dhaka, Bangladesh, December 16 – 26, 2007, 10 pages on compact disc
88. **Farouk, T.,** Farouk, B., Gutsol, A., Fridman, A., "Simulation of atmospheric pressure methane – hydrogen micro-discharge for diamond like carbon (DLC) film deposition" *IEEE Pulsed Power and Plasma Science Conference*, Albuquerque, New Mexico, June 17 – 22, 2007, Pages 728 – 731.
89. Farouk, B., **Farouk, T.,** Staack, D., Gutsol, A., Fridman, A., "Atmospheric pressure plasma micro discharges for high rate deposition" *Proceedings of 2006 NSF Design, Service and Manufacturing Grantees and Research Conference*, St Louis, Missouri, July 24 – 27, 2006, 10 pages on compact disc.
90. **Farouk, T.,** Husain, S., Rasul, M., Shams, M., Sarkar, M., Huq, A., "Natural convection heat transfer from vertical triangular fin arrays" *4th International Conference on Mechanical Engineering*, Dhaka, Bangladesh, December 26 – 28, 2001, Pages 197 – 202.

INVITED LECTURES AT CONFERENCES & SEMINARS

1. **Farouk, T.,** "Negative hydroxyl ions for breakdown in liquid water" International Online Plasma Seminar, August 19, 2021.
2. **Farouk, T.,** "Atmospheric pressure sub-normal glow discharge and their application in enhancing the piezoelectric properties of polyvinylidene fluoride PVDF films" **Keynote,** Annual Meeting of the Electrostatic Society of America, Norman, Oklahoma, June 14 – 16, 2021.
3. **Farouk, T.,** "Strategies for modeling non-equilibrium plasma discharges", The Center for Space Plasma Research, University of Alabama, Huntsville, Alabama, June 19, 2020.
4. **Farouk, T.,** "Dynamics at near limit conditions in reacting thermo-fluids – droplet combustion

to plasma discharge" Department of Mechanical and Aerospace Engineering, University of Notre Dame, South Bend, Indiana, October 15, 2019.

5. **Farouk, T.,** "Cool flame burn in microgravity droplet combustion – New findings in a classical configuration", 11th MACCCR (Multi-agency Combustion Research Coordinate Committee) Annual Fuel and Combustion Research Review, Sandia National Laboratory, Livermore, California, April 9 – 11, 2018.
6. **Farouk, T.,** "Emission from high hydrogen content (HHC) fuels combustion in gas turbine applications", DOE-NETL organized University Turbine System Research Workshop, Pittsburgh, Pennsylvania, November 1 – 2, 2017.
7. **Farouk, T.,** "Multifaceted nature of reacting thermo-fluids – Non-equilibrium plasma and equilibrium flames", Department of Mechanical Engineering, University of Minnesota, Minneapolis, Minnesota, February 13, 2017.
8. **Farouk, T.,** "Fuels and Energy Conversion Technologies" *GE Energy: GE Power & Water,* Greenville, South Carolina, February 7th, 2017
9. **Farouk, T.,** "Cool Flames in Space?", Physics and Astronomy Department Colloquium at USC, Columbia, South Carolina, November 17, 2016.
10. **Farouk, T.,** "High hydrogen content (HHC) fuel combustion in gas turbines: Formation of NO_x-CO under operation conditions", DOE-NETL organized University Turbine System Research Workshop, Blacksburg, Virginia, November 1 – 3, 2016
11. **Farouk, T.,** "Cool flames in space a hot prospect in earth!", University of North Carolina, Charlotte, North Carolina, November 4, 2015.
12. **Farouk, T.,** "NO_x-CO formation in high hydrogen content (HHC) fuels combustion in gas turbine applications", University Turbine System Research Workshop, Atlanta, Georgia, November 3 – 5, 2015.
13. **Farouk, T.,** "An experimental and modeling study of NO_x-CO formation in high hydrogen content (HHC) fuels combustion in gas turbine applications", University Turbine System Research Workshop, West Lafayette, Indiana, October 21 – 23, 2014.
14. **Farouk, T.,** "The beauty and the beast: Multi-faceted nature of reacting thermo-fluids – Droplet combustion to plasma discharge", Department of Mechanical Engineering, Texas A&M University, College Station, Texas, May 8, 2014.
15. Won, S., Dooley, S., Dryer, F., **Farouk, T.,** Ju, Y., "Development of detailed and reduced kinetic models for real jet fuels: challenges and opportunities", 52nd AIAA Aerospace Sciences Meeting, National Harbor, Maryland, January 13 – 17, 2014.
16. **Farouk, T.,** "Droplet combustion: "Cool Fames" in space?" **Irvin Glassman Lecture,** Fall Technical Meeting of the Combustion Institute, Fall Technical Meeting of the Eastern States Section of the Combustion Institute, Clemson, South Carolina, October 13 – 16, 2013.
17. **Farouk, T.,** "Surrogate jet fuels to droplet combustion: recent studies of surrogate formulation for describing real fuel combustion", GE Energy: GE Power & Water, Greenville, South Carolina, January 28th, 2013.
18. **Farouk, T.,** Dryer, F., ""Cool flame" behavior for isolated alkane droplet combustion in microgravity", 28th Annual Meeting of the American Society for Gravitational and Space Research, New Orleans, Louisiana, November 28th – December 2nd, 2012.
19. **Farouk, T.,** Dryer, F., "A numerical study on the extinction characteristics of droplet combustion

under microgravity conditions", 50th AIAA Aerospace Sciences Meeting, Nashville, Tennessee, January 9 – 12, 2012.

STUDENT ADVISED

CURRENT UNDERGRADUATE STUDENTS

- John Hill "Plasma reforming of siloxane" (2021)
- Nate Ramanjulu "Misty plasma for decontamination" (2021)

PAST UNDERGRADUATE STUDENTS

- Patrick Bailey "Supercritical plasma discharge" (2019)
- Isaac Yaghi "Supercritical reactor for supercritical combustion" (2018)
- Gregory Belk "Plasma characteristics under high water vapor loading" (2017)
- Krystal Fowler "Low temperature ignition" (2016)
- Damon Eddy "Plasma treatment of composites" (2016)
- Marion Burguet "Plasma discharge in non-polar liquids" (2016)
- Zachary Peace "Design of forced convection system for nuclear fuel rod drying" (2015)
- Ilana Lu "Design of vacuum system for nuclear fuel rod drying" (2015)
- Ian Adkins "Drying used nuclear fuel rods" (2015).
- Michael Berry "Gliding arc discharge reactor" (2014).
- Jacob Schaufler "Design of a high-pressure plasma reactor" (2013).

CURRENT DOCTORAL STUDENTS

- Malik Tahiyat - "Plasma discharge in liquids and supercritical medium"
- Sudipta Saha - "Supercritical combustion"
- Ejaz Ahmed - "Multiphysics model for simulating multicomponent spray"
- Ebrahim Khalil - "Misty plasma for chemical reforming"
- Ayoub Al-Wahaibi – "Plasma-droplet interactions"

PAST GRADUATE STUDENTS

DOCTOR OF PHILOSOPHY

- Ali Charchi "Fundamental understanding of plasma discharge formation in liquid and multiphase configurations through multiphysics modeling" **Doctor of Philosophy in Mechanical Engineering** (2020).
  Current Position: Research Engineer, Mitsubishi Electric Research Laboratories, Cambridge, MA.
- Sheikh Ahmed "Kinetic and multidimensional transport coupled numerical investigation of NO_x formation during syngas and natural gas combustion" **Doctor of Philosophy in Mechanical Engineering** (2020).
  Current Position: Postdoctoral Associate, National Renewable Energy Laboratory, Golden, CO.
- Fahd Alam "Combustion behavior of submillimeter sized oxygenated and n-alkane fuel droplets" **Doctor of Philosophy in Mechanical Engineering** (2018).
  Current Position: Senior Research Engineer, Exponent, Irvine, CA.
- Rajib Mahamud "Instability in Non-equilibrium and Non-thermal Micro Plasma Discharge" **Doctor of Philosophy in Mechanical Engineering** (2017).
  Current Position: Postdoctoral Associate, Los Alamos National Laboratory, Los Alamos, NM.

MASTER OF SCIENCE

- Gregory Belk "Design and characterization of a supercritical carbon dioxide plasma reactor" **Master of Science in Mechanical Engineering** (2020).
  Current Position: Engineer, Redstone Arsenal, Huntsville, AL.
- Sudipta Saha "Numerical analysis on convective cooling augmented by evaporative heat and mass transfer for thermal power plant application" **Master of Science in Mechanical Engineering** (2019).
  Current Position: Ph.D., University of South Carolina, SC.
- Mostafa Mobli "Thermal Analysis of High-pressure Micro Plasma Discharge" **Master of Science in Mechanical Engineering** (2014).
  Current Position: Teaching Professor, University of South Carolina, Columbia, SC.

PROFESSIONAL SERVICES & ACTIVITIES

EDITORIAL BOARD

- Associate Editor, Frontiers in Mechanical Engineering
- Guest Editor, Special Issue "Cool flames and low temperature combustion", Frontiers in Mechanical Engineering

REVIEWER SERVICE

- International Journal of Heat and Mass Transfer
- Applied Thermal Engineering
- International Journal of Multiphase Flow
- Physics of Plasma
- Plasma Physics & Controlled Fusion
- Plasma Sources Science & Technology
- Plasma Chemistry & Plasma Processing
- IEEE Transactions on Plasma Science
- Journal of Physics D: Applied Physics
- 34^{th} – 38^{th} International Symposium on Combustion
- Combustion Science & Technology
- Combustion Theory and Modelling
- Combustion and Flame
- Energy & Fuels

PROPOSAL REVIEWER

- American Chemical Society (ACS)
- National Science Foundation (NSF)
- National Aeronautics and Space Administration (NASA)
- Department of Energy (DOE)

CONFERENCE ORGANIZER/SESSION CHAIRS/MEMBER OF PANEL

- Local organizing committee for the 2020 Spring Technical Meeting of the Eastern States Section of the Combustion Institute in Columbia, SC.
- Organizing committee member for the 72^{nd} Annual Gaseous Electronic Conference, College Station Texas, 2019.
- Session chair for the 70^{th} Annual Gaseous Electronics Conference, Pittsburgh, PA, 2017 and 71^{st} Annual Gaseous Electronics Conference, Portland, OR, 2018, 73^{rd} Annual Gaseous Electronics Conference, San Diego, CA, 74^{th} Annual Gaseous Electronics Conference, Huntsville, AL.

- Session chair and organizer for the 33rd Annual Meeting of the American Society of Gravitational and Space Research, Seattle, WA, 2017 and 34th Annual Meeting of the American Society of Gravitational and Space Research, Bethesda, MD, 2018, 37th Annual Meeting of the American Society of Gravitational and Space Research, Baltimore, MD, 2021.
- Session chair at the 44th International Conference on Plasma Science, Atlantic City, NJ, 2017
- Session chair at the 8th US National Meeting of the Combustion Institute, Salt Lake City, UT, 2013, 9th US National Meeting of the Combustion Institute, Cincinnati, OH, 2015, 10th US National Meeting of the Combustion Institute, College Park, MD, 2017
- Session chair at the 32nd Annual Meeting of the American Society of Gravitational and Space Research, Cleveland, OH, 2016
- Session chair at the Fall Technical Meeting of the Eastern States Section of the Combustion Institute, Clemson, SC, 2013, Spring Technical Meeting of the Eastern States Section of the Combustion Institute, Princeton, NJ, 2016, Spring Technical Meeting of the Eastern States Section of the Combustion Institute, State College, PA 2018.

PROFESSIONAL MEMBERSHIPS

- American Physical Society (APS)
- American Society of Mechanical Engineers (ASME)
- Institute of Electrical and Electronic Engineers (IEEE)
- Combustion Institute (CI)
- American Institute of Aeronautics & Astronautics (AIAA)