

Dr. Reza Sadr

Curriculum Vita

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Highlights

➤ **Education**

- Ph.D., Mechanical Engineering, University of Utah, 2002
- M.Sc., Aerospace & Mechanical Engineering, Carleton University, 1996
- B.Sc., Mechanical Engineering, IUST, 1992

➤ **Employments**

- Associate professor, Texas A&M University at Qatar (TAMUQ), 2014 – present
- Associate professor, Texas A&M University (TAMU), 2017 – 2020
- Assistant professor, Texas A&M University at Qatar, 2011 – 2014
- Visiting assistant professor, Texas A&M University at Qatar, 2008 – 2011
- Visiting Assistant Professor, Georgia Institute of Technology, 2005 – 2008
- Research Faculty, Georgia Institute of Technology, 2002 – 2005

➤ **Professional Activities**

- Published **112** peer reviewed publications (66 journal + 46 conference)
- Writing **4** book chapters and **2** complete laboratory manuals
- Delivered **21** invited talks, Keynote speeches, and delivered **74** conference presentations.
- Submitted **6** patent disclosures.
- Building **2** undergraduate and **2** research Laboratories
- ABET coordinator of the Mechanical Engineering at TAMUQ

Part 1: Resume

Education:

- PhD in Mechanical Engineering 2002
The University of Utah (Salt Lake City, Utah)
An Experimental Study of Particle-Fluid Interactions in the Near Field Region of a Particle-Laden Coaxial Jet. Advisor: Dr. Joseph Klewicki.
- M.S. in Mechanical and Aerospace Engineering 1996
Carleton University (Ottawa, Canada)
Design and Analysis of a Four-Wire Probe for Incompressible Flow Measurement in Curved Diffusers
- B.Sc. in Mechanical Engineering (*Minor in Thermo-Fluids*) 1991
Iran University of Science and Technology (Tehran, Iran)

Employment:

- **Professor** 2021
Mechanical Engineering program, TAMUQ
- **Associate Professor** 2017 – 2020
J Mike Walker '66 Department of Mechanical Engineering, TAMU
- **Associate Professor** 2014 – 2021
Mechanical Engineering program, TAMUQ
- **Assistant Professor** 2011 – 2013
Mechanical Engineering program, TAMUQ
- **Visiting Assistant Professor** 2008 – 2011
Mechanical Engineering program, TAMUQ
- **Visiting Assistant Professor** 2005 – 2008
George Woodruff School of Mechanical Engineering
Georgia Institute of Technology (Savannah Campus, GA)
- **Research Engineer II (Research Faculty)** 2002 – 2005
George Woodruff School of Mechanical Engineering
Georgia Institute of Technology (Atlanta, GA)
- **Research and Teaching Assistant** 1996 – 2002
Department of Mechanical Engineering, University of Utah (Salt Lake City, UT)
- **Teaching Assistant** 1994 – 1996
Department of Mechanical & Aerospace Engineering, Carleton University, (Ottawa, Canada)
- **Instructor** 1991 – 1993
Department of Mechanical Engineering, I. H. University (Tehran, Iran)

Editorial services:

- Associate Editor, ASME Journal of Engineering 2023 – present
- Associate Editor, ASME Journal of Energy Resources Technology 2014 – 2023

Professional Contributions:

- ABET coordinator of MEEN at TAMUQ 2023 – present
- Professional Memberships
 - Fellow/Life member: American Society of Mechanical Engineers (ASME) present
 - American Physical Society (APS) 2001 – present
 - Energy Institute, Texas A&M Engineering Experiment Station (TEES) 2018 – present
 - Gas & Fuel Research Center (GFRC), TEES 2014 – present
 - Energy System Laboratory (ESL), Texas A&M University 2021– present
 - ASME Multiphase flow technical committee 2012 – present
 - ASME Micro/nano fluids technical committee 2012 – present
- ASME, 2015 IMECE elected to organize and manage section: 2014 – 2015
9-16 Multiphase Flow with Oil and gas applications, Houston
- International Conference on Quantum, Nano and Micro Technologies (ICQNM) Technical Program Committee member 2013 – present
- Reviewer (journals)
 - *Journal of Fluid Mechanics, Experiments in Fluids, Microfluidics and Nanofluidics,*
 - *Measurement Science and Technology, Experimental Thermal and Fluid Science*
 - *Fuel, International Journal of Heat and Mass Transfer, Chemical Engineering Science*
 - *Review of Scientific Instruments, Aircraft Engineering and Aerospace Technology, Electrophoresis, Sensors*
- Session chair
 - APS/DFD conferences,
 - ASME IMECE,
 - International Conference on Quantum, Nano & Micro Technologies, Engineering Conferences International (ECI),
 - PIV05 conference.

Publication Highlights:

- 4 book chapters
- 66 refereed journal publication
 - Average impact factor of all the publications **3.8**
 - Web of Science[®]
 - Total number of citations in **1220**
 - **h-index** **22**
 - Google Scholar
 - Total number of citations **2261**
 - **h-index & i10-index** **27 & 51**
- 46 refereed conference publications.
- 64+ conference presentations
- 23 Keynote lectures and invited talks
- 2 detailed laboratory manuals (Fluid Mechanics and Heat Transfer)

Details of these publications are provided in Part 4.

Patent Disclosures:

- Circular Gradient-width Cross-flow Microfluidic Design to Improve Blood Plasma Separation Performance **2021**
U.S. provisional patent application No. 63/241,731
- Low-Cost, Air-Sanitization Device for Large Indoor Areas **2020**
TAMUS 5609; U.S. provisional patent application No.: 63/108,412
- Novel Methodology to Control the Drilling Fluid Loss via Ultrasonication **2019**
TAMUUS 24573; U.S. provisional patent application No.: 63/014354
- Zeotropic HC-CO₂ working fluid for Rankine organic power cycles **2018**
Submitted to Texas A&M University Technology Transfer Office
- Shear measuring system for atmospheric boundary layer **1999**
Submitted to University of Utah's Technology Transfer Office
- Particle feeding system **1999**
Submitted to University of Utah's Technology Transfer Office

Research Experience:

Thermo-fluid sciences in mechanical and aerospace engineering; advance experimental methods in this field. Below is a brief list of these methods and subjects on research.

- Experimental techniques for fluid mechanics:
Micro and Nano Particle-Image Velocimetry (μ PIV & nPIV), Sonic Anemometry, Molecular Tagging Velocimetry (MTV); Global Sizing Velocimetry (GSV), Droplet (particles) size and velocity measurement, Phase Doppler Particle Analyzers (PDPA), Laser Induced Fluorescence (LIF), Hot-Wire Anemometry (HWA) and Multi-hole pressure probes measurement.

- Experimental methods in Micro- and nano-scale heat transfer and thermometry
- Brownian motion and nanofluids suspension
- Single phase and particle-laden turbulent flows and sprays
- Atmospheric turbulent flow studies
- Supercritical CO₂ and zeotropic thermo-fluids studies

Teaching Highlights:

Graduate and Undergraduate courses in thermal fluid sciences (over **50** classes);

Engineering Imaging (new course in Texas), Turbulence Measurement and Analysis (update course for the new techniques), Thermodynamics, Fluid Mechanics, Heat Transfer, Thermo-Fluid Design, Intermediate Design studio, Engineering Laboratory studio, Refrigeration systems, Undergraduate Research; Thermodynamics laboratories. Details are provided below in Part 2.

(Note: Texas A&M University at Qatar and G.W. Woodruff School of Mechanical Engineering at Georgia Tech Savannah do not offer any graduate courses.)

Selected Certificates and Awards/ Professional Trainings:

- ABET, IDEAL Scholar certificate 2023
- Certificate for completion of “Fundamentals of Program Assessment” for ABET 2023
- Second prize for best UREP research thesis award, Qatar foundation, Qatar 2020
- Second place winner of “Best Representative Image of an Outcome’ (BRIO) competition” award, Qatar Foundation, Qatar 2016
<http://www.qf.org.qa/news/qnrf-announces-winners-of-inaugural-brio-photography-competition>
- Fundamentals of Safety Management 2014, 2016
One whole day training on lab safety. TAMUQ
- How to write an effective Project Safety Analysis (PSA) for laboratory 2014
- Best paper award, The Sixth International Conference on Quantum, Nano and Micro Technologies, Paper No. 80209, 2012
- Winner of the third visualization development competition, Texas A&M at Qatar 2011
Title of the presentation “3D visualization of near wall movement of nano particles in micro channels”
- Certificate: *Health and Safety in Science & Engineering Labs* 1994
Carleton University. Ottawa, Canada
- National scholarship award for MSc education (full scholarship) 1992

Industrial Experience:

- Mid Michigan Research (<http://www.mmrlc.com/>) (Lancing, USA) 2006 – 2008
Consultant on development and application of 3D_MTV for IC Engine

Undergraduate Laboratory Development:

- Setup an all new Heat Transfer Laboratory (MEEN465) 2009 – 2011
Texas A&M University at Qatar
 - Design of the laboratory with all new experimental systems
 - Purchasing parts, manufacturing, testing and calibration of the new setups
 - Training three young lab technicians for maintenance and operation of the lab
 - Preparation of a complete (80+ pages) laboratory manual
- Upgrading Fluid Mechanics Laboratory (MEEN345) for ABET 2009 – 2011
Texas A&M University at Qatar
 - Design of new experiment and set ups
 - Purchasing parts, manufacturing, testing and calibration of the new experimental setups
 - Development of a new Micro Fluids experiment for undergraduate laboratory
 - Training of the three young lab technicians for maintenance and operation of the lab
 - Preparation of a complete (83+ pages) laboratory manual

Research Laboratory Development:

- Micro Scale Thermo-Fluids (MSTF) Laboratory,
Texas A&M University at Qatar hosts:
 - Custom made high pressure/temperature fuel spray testing facility
 - Custom made Super Critical CO₂ thermal hydraulic testing facility
 - Micro/Nano fluidics testing facility
 - Ocean and atmospheric testing site and facility development

Students Advised:

5 PhD students and 2 MS students advised/Co-advised @ Texas A&M University.

Over 20 undergraduate students advised and conducted research/training @ Texas A&M University at Qatar and G.W. Woodruff School of Mechanical Engineering at Georgia Tech Savannah (Do not offer any graduate program).

Post Doctorate fellow and research staff supervised:

- *Assi. Research Sci.:* Kumaran Kaniayn (TAMQ) 2009 – present
Spray characteristics in GTL combustion project.
- *Assi. Research Sci.:* Anoop, Kanjirakat (TAMQ) 2010 – present
Study of heat transfer enhancement in Nano fluids and nanofluidics.
- *Post Doctorate:* Way Lee Cheng (TAMQ) 2012 – 2017
Numerical simulation of Nano fluids.

- *Post Doctorate:* Dhrubajyoti Samanta (TAMQ) 2015 – 2016
Ocean Wave and Atmospheric Interaction research.
- *Post Doctorate:* Katsuyoshi Tanimizu (TAMQ) 2010 – 2015
Study of supercritical fluid thermal hydraulics.
- *Post Doctorate:* Babak Gheynani (TAMQ) 2013 – 2014
Numerical simulation of Nano fluids.
- *Research Associate:* Ayman Saleem (TAMQ) 2013
Weather data analysis in Doha
- *Post Doctorate:* Arindam Singha (TAMQ) 2010– 2012
Ocean Wave and Atmospheric Interaction research.
- *Research Associate:* Rana Khader (TAMQ) 2009 – 2011
PIV error analyst.
- *Research Associate:* Shawn Sagheb (TAMQ) 2009 – 2010
Laboratory coordinator and safety officer.

Committee Service: External

- Gas-to-Liquid (GTL) consortium steering committee 2011 – 2013
Representative of TAMUQ. This consortium includes *Sheffield University, Rolls-Royce (UK), Shell Co., German Aerospace (DLR), and Qatar Science and Technology Park (QSTP)*
- Combustion group coordinator for the joint GTL project, 2009 – 2013
This group includes Rolls-Royce team, UK, and DLR, Germany

Committee Service: Internal

- Elected for ad hoc university wide committee for formation of new contracts 2023 – 2024
- Chair of MEEN industry outreach committee 2014 – 2017
- Chair of Principle Investigators Council (PIC) at the campus 2014 – 2016
- Member of University Safety Council 2014 – 2016
- MEEN representative in Faculty Advisory Council (FAC) 2011 – 2015
- MEEN representative in Principle Investigators Council 2012 – 2014
- Departmental ABET coordinator for facility 2012 – 2013
- Chair of MEEN purchasing committee 2012 – 2013
- MEEN curriculum committee member 2010 – 2012
- MEEN research space committees 2012 – 2013
- MEEN Laboratory technician search committee 2009 – 2012

- MEEN secretary search committee 2012
- Chair of committee to set up the guidelines for Council of PI 2011
This committee was formed to act as the interim Council of Principle Investigators (CPI) for Texas A&M at Qatar (later named PIC) and establish the required bylaws.
- Member of search committee for mechanical engineering Program Chair 2011
- Member of faculty search committee for mechanical engineering 2011
- University safety sub-committee 2009

Part 2: Research Funding

Total awarded external funding of US \$**11,873,000** since joining Texas A&M at Qatar (Dr. Sadr share \$US **7,272,312**). These are all highly competitive and internationally reviewed proposals funded at TAMUQ mostly from:

- Qatar National Priority Research Program (NPRP) is a competitive international peer reviewed funding provided by Government of Qatar. Its selection and award criteria are similar to those of NIH in the United States in a more international form.
- Qatar Science and Technology Park (QSTP) is an industrial oriented funding similar to STTR, and SBIR, funding from NSF in the United States in a more international form.

Major external research awarded funding

- *Hydrocarbon-CO₂ blends: An Environmentally-Benign Alternative Refrigerant* 3/18 - 3/19
PI: R. Sadr (TAMUQ); M. Metghalchi, Y. Levendis (North Eastern University), and K. Kannaiyan (TAMUQ). Industrial project Funded by Shell. Total Project Funding including TAMU: \$300,000., funding amount for Dr. Sadr **\$240,000**.
- *Lab-on-chip system for point-of-care cardiac biomarker screening utilizing sensitive photonic sensor* 3/18 - 12/2021
PI: R. Sadr; A Han (ECE, TAMU), A Adibi (ECE, Georgia Tech), A R Arabi MD (HMD, Qatar) and A Baby (TAMUQ); (*A multi-disciplinary project*). Funded by **NPRP**, Qatar. Total Project Funding including TAMU: \$799,997. Funding amount for Dr. Sadr **\$474,000**
- *In-depth Characterization of Spray and Combustion Performance of Alternative Jet Fuels at Gas Turbine Combustor Conditions* 01/15 - 12/2018
R. Sadr, Lead PI; M. Metghalchi (North Eastern University), and Dr. K. Kannaiyan (Texas A&M University at Qatar). Funded by **NPRP**, Qatar. Total Project Funding including TAMU: \$855,000. Funding amount for Dr. Sadr **\$644,000**
- *Study of thin liquid film dynamics induced by multiple droplet impingement* 10/13 - 10/2017
PI: J. Alverado (ETID, TAMU), and R. Sadr. Funded by **NPRP**, Qatar. Total Project Funding including TAMU: \$1,047,975. Funding amount for Dr. Sadr **\$877,076**
- *Microfluidic Platforms for High-Throughput Screening of Microbes Utilizing Wastewater* 10/12 - 10/2016
PI: R. Sadr; A. Han (EE), C. Yu (MEEN), P. de Figueiredo (Plant Pathology and Microbiology); (*A multi-disciplinary project*). Funded by **NPRP**, Qatar. Total Project Funding including TAMU: \$1,049,005, Funding amount for Dr. Sadr **\$674,418**
- *Development of an observational system to monitor near-shore wind, waves, and sediment transport* 10/12 - 10/2016
PI: J. Kaihatu (Civil), R. Sadr; (*A multi-disciplinary project*). Funded by **NPRP**, Qatar. Total Project Funding: \$1,047,975, Funding amount for Dr. Sadr **\$725,924**
- *Effects from Micro- and Nano-Sized Spheres Moving through a Quiescent Viscous Fluid* 9/10 – 4/2014
PI: R. Sadr; J.N. Reddy, Funded by **NPRP**, Qatar. Total Project Funding: \$975,671, funding amount for Dr. Sadr **\$718,000**

- *Study of Enhanced Heat Flux for Nano-Structured Surfaces and Nano-Fluids using Microfluidics Integrated with Optical Detection and Quantum Dot Tracers* 9/09 – 10/2012
PI: R. Sadr, D. Banerjee. Funded by **NPRP**, Qatar. Total project funding: \$1,040,000, funding amount for Dr. Sadr **\$795,000**
- *In-depth Characterization of Synthetic GTL Jet Fuel Combustion Performance in Current & Future Gas Turbine Engines* 7/09 – 8/2012
Lead PI and Team coordinator: R. Sadr ; Funded by **QSTP**, Qatar.
Total Project Funding including *Rolls-Royce* (UK) and *DLR* (Germany): \$2,500,000, funding amount for Dr. Sadr **\$650,000**
- *Study of Supercritical fluid thermal hydraulics* 9/09 – 10/2012
PI: R. Sadr, D. Ranjan. Funded by **NPRP**, Doha, Qatar. Total project Funding: \$1,020,000, funding amount for Dr. Sadr **\$680,000**
- *Interaction of Turbulent Wind with Ocean Surface Waves: Field Experiments and Numerical Modeling* 9/09 – 10/2012
PI: R. Sadr, J. Kaihatu (Civil), PI (*A multi-disciplinary project*). Funded by **NPRP**, Qatar. Total Project Funding: \$1,030,000, funding amount for Dr. Sadr **\$705,000**

Undergraduate external research award funding

- *Multiphase Flow Visualization of Alternative Refrigerant Mixtures* 6/19 – 6/2020
K Kannaiyan and R Sadr Principal Supervisors; Supported by the Qatar Foundation (Doha, Qatar). Funding amount **\$10,000**
- *Effect of Nanoparticles on Alternative Fuel Sprays at High-Pressure Conditions* 1/18 – 1/2019
K Kannaiyan and R Sadr Principal supervisors; Undergraduate students: Alreem Al-dosari, Hissa Al-khatter, Buthaina Al-abdulla
Supported by the Qatar Foundation (Doha, Qatar). Funding amount **\$14,970**
- *Miniature Heat Sink Design for Electronic Cooling* 1/14 – 10/2014
R. Sadr, Principal supervisor; Undergraduate student Mahmoud Ibrahim Kassem;
Supported by the Qatar Foundation (Doha, Qatar). Funding amount **\$10,000**
- *Design preparation, and set up of a vertical flow test section for Supercritical carbon dioxide flow facility* 8/11 – 4/2012
R. Sadr, Principal supervisor; Undergraduate students Mohamed Alaaa Edin Mohamed;
Supported by the Qatar Foundation (Doha, Qatar). Funding amount **\$10,000**
- *Design and setup of experimental facility for atmospheric study* 8/10 – 4/2011
R. Sadr, Principal supervisor; Undergraduate students Ahmed Jichi;
Supported by the Qatar Foundation (Doha, Qatar). Funding amount **\$10,000**
- *Design and Construction of an optically accessible Spray Diagnostic Facility* 8/10 – 4/2011
R. Sadr, Principal supervisor; Undergraduate students Mohamed Al-Athba;

Supported by the Qatar Foundation (Doha, Qatar). Funding amount **\$10,000**

- *Design and Construction of an Automated Air Jet Calibration Facility* 8/08 – 4/2009
R. Sadr, Principal supervisor; Undergraduate students Amr Eltahawy, Khaled Hassiba;
Supported by the Qatar Foundation (Doha, Qatar). Funding amount **\$20,000**

Internal awarded funding

- *Thermal Hydraulic Study of Molten Metal Micro Pool in Laser based Direct Energy Deposition System*
Reza Sadr, Bilal Mansour, TAMUQ internal research initiative: **\$500,000** 8/22 – 7/2025
- *Hands-on Engineering Education via Design of Field Experiments* 5/23 – 5/2025
PI Dr. Reza Sadr, 2023 Transformative Educational Experience (TEE): **\$8,000**
- *Design of a new multidisciplinary course “The Art of Science and Engineering Imaging”*
PI Dr. Reza Sadr, Seed funding for two years: **\$14,000** 5/23 – 5/2025
- *Topological Photonics in Soft Matter for Optical Data Routing and Processing* 1/19 – 1/2021
PI Dr. Wieslaw Krolikowski (Science – Physics), co-PI Dr. Reza Sadr (MEEN), Seed funding for two years: **\$150,000**
- *Preliminary Study of Impact of Dust on the Operation of Aviation Engines in Qatar*
LPI Dr. Bing Guo (MEEN). PIs: Drs. E. Petersen (MEEN, TAMU), I. Hassan, V. Panchang, R. Sadr. Seed funding for one year: **\$40,000** 1/16 – 1/2017
- *Novel Molecular Velocimetry Techniques in Dilute Fiber Suspensions for Headbox Flows* 6/04 – 6/2005
PI: R. Sadr, Co-PI: C.K. Aidun and M. Yoda (GaTech), Institute of Paper Science and Technology (Georgia Tech, Atlanta, GA). Seed funding for one year: **\$50,000**

Part 3: Publications and Presentations

Book Chapters:

- 1) K Kannaiyan, R Sadr, and V Kumaravel, "Application of nanoparticles in clean fuels", Chapter 9 of the book titled "*Nanostructured Materials for Energy related Applications*", Editors: Rajendran Saravanan, Mu. Naushad, and Subramanian Balakumar, Springer Nature, under the book series "Environmental Chemistry for a Sustainable World", Vol. 24, **2019**
- 2) K Kannaiyan and R Sadr, "Role of Alternative Aviation Fuels on Reducing the Carbon Footprint", Chapter 33 of "*The Water-Food-Energy Nexus: Processes, Technologies, and Challenges*," Editors: I.M. Mujitaba, R. Srinivasan, and N.O. Elbashir, Taylor & Francis (catalog # K28703): Green Chemistry and Chemical Engineering series, ISBN: 978-1-4987-6083-6, (in Press) **2017**
- 3) R Sadr, K Kannaiyan, K Anoop, and K Tanimizu, "Macro- to Micro-scale Thermo-Fluids research in Energy Efficient Systems," Chapter VI of *Excellence and Impact of Research at Texas A&M at Qatar*, Editors M Weichold, K Hall, and E Masad, ISBN 978-99921-95-33-8, p 115, **2013**
- 4) K Kumaran and R Sadr, "Numerical simulation of coaxial turbulent jet with and without discrete particles," section 5 "turbulent flow" in *Advances in Fluid Mechanics*, Editors M. Rahman and C.A. Brebbia, ISSN 1743-2533, p 345, **2012**

Peer Reviewed Journal Publications:

65 refereed journal and **46** conference publication

- | | |
|---|-------------------------------|
| – Average impact factor of the journal publications | 3.8 |
| – Total number of citations in Web of Science® | 1220 |
| – Total number of citations in Google Scholar | 2261 (1125 since 2019) |
| – h- & i10-index | 27 & 51 |
- 1) Q Li, J Alvarado, K Kannaiyan, R Sadr, "Large eddy simulation of emulsified canola oil combustion in swirl-prompted combustion chamber," 29 December **2023**
<https://doi.org/10.21203/rs.3.rs-3799170/v1>
 - 2) K Kannaiyan and R Sadr, "Influence of fuel characteristics on the alternative jet fuel atomization at non-reacting conditions," *Fuel*, 357, 129908 **2023**
 - 3) Y Li and R Sadr, "Atmospheric Turbulent Characteristics under Summer Shamal in Coastal Qatar," *Journal of Geophysical Research: Atmospheres*, 2022JD037971RR, **2023**
 - 4) A Kannaiyan and R Sadr, "Spray characteristics of natural gas-based alternative jet fuel at high pressure ambient conditions," *Fuel*, 350, 128409 **2023**
 - 5) Y Li and R Sadr, "Atmospheric Surface Layer Turbulence Characteristics in the Coastal Region of Qatar," *Boundary-Layer Meteorology*, BOUN-D-22-00014R1, **2022**
 - 6) H Zhang, K Anoop, C Huang, R Sadr, R Gupte, J Dai and A Han: "A Circular Gradient-Width Crossflow Microfluidic Platform for High-Efficiency Blood Plasma Separation," *Sensors and Actuators B: Chemical*, 354, 131180 **2022**

- 7) D Das, M Kazim, R Sadr, M Pate, "Optimal Hydrocarbon Based Working Fluid Selection for a Simple Supercritical Organic Rankine Cycle," *Energy Conversion and Management*, 243, 114424, **2021**
- 8) Y Li and R Sadr, "Diurnal Wind Pattern and Climate Condition on the Coastal Region of Qatar," *Journal of Scientific Research and Reports*, 2021/JSRR/66402, **2021**
- 9) A Kanjirakat, R Sadr and J Alvarado, "Micro Particle Tracking Velocimetry in the impingement-zone of a micro-droplet stream," *Journal of Fluids Engineering*, 143(10), 101202 **2021**
- 10) K Kannaiyan and R Sadr, "Spray performance of alternative and conventional jet fuels at non-reacting, elevated ambient conditions," *Fuel*, 294, 120467 **2021**
- 11) J P Muthusamy, T Zhanga, J L Alvarado, A Kanjirakat, R Sadr, "Hydrodynamic and heat transfer characteristics of droplet train spreading-splashing transition on heated surface," *International Journal of Heat and Mass Transfer*, 164, 120500. **2021**
- 12) S.C. Yelishala, K Kannaiyan, R. Sadr, Z. Wang, Y.A. Levendis, H. Metghalchi, "Performance Maximization by Temperature Glide Matching in Energy Exchangers of Cooling Systems Operating with Natural Hydrocarbon/CO₂ Refrigerants," *International Journal of Refrigeration*, 119, 294-304. **2020**
- 13) K Kannaiyan, A AlDosari, and R Sadr, "Effects of nanoscale fuel additives on properties and non-reacting spray performance of alternative, conventional and blended jet fuels at elevated ambient conditions," *Fuel Processing Technology*, 208, 106436. **2020**
- 14) S C Yelishala, K Kannaiyan, Z Wang, H Metghalchi, Y A Levendis, R Sadr, "Thermodynamic Study on Blends of Hydrocarbons and Carbon Dioxide as Zeotropic Refrigerants," *Journal of Energy Resources Technology*, 142(8), 082304, **2020**
- 15) K Kannaiyan and R Sadr, "Macroscopic spray performance of alternative and conventional jet fuels at non-reacting, elevated ambient conditions," *Fuel*, 266, 117023, **2020**
- 16) K Anoop, R Sadr, R Yrac, and M Amani, "Viscosity measurement dataset for a water-based drilling mud-carbon nanotube suspension at high-pressure and high-temperature," *Data in brief*, DIB_103816, March **2019**
- 17) S C Yelishala, Z Wang, H Metghalchi, Y A Levendis, K Kannaiyan, R Sadr, "Effect of Carbon Dioxide on the Laminar Burning Speed of Propane–Air Mixtures," *Journal of Energy Resources Technology*, 141(8), **2019**
- 18) K Anoop, R Sadr, R Yarc and M Amani, "Rheology of a colloidal suspension of carbon nanotube particles in a water-based drilling fluid," *Powder Technology*, PTEC 342, 585-393, **2019**
- 19) W L Cheng, C Erbay, R Sadr, and A Han, "Dynamic Flow Characteristics and Design Principles of Laminar Flow Microbial Fuel Cells," *Micromachines*, 9(10), 479, **2018**
- 20) W L Cheng, R Sadr, J Dai and A Han, "Prediction of Microdroplet Breakup Regime in Asymmetric T-Junctions," *Biomedical Microdevices*, 20:72, **2018**
- 21) T Zhang, J P Muthusamy, J Alvarado, A Kanjirakat, R Sadr, "Experimental and Numerical Visualization of Heat Transfer and Hydrodynamics Induced by Double Droplet Train Impingement," *Journal of Heat Transfer*, 080901-1, **2018**

- 22) K Kannaiyan and R Sadr, "Comparison of near nozzle spray performance of GTL and Jet A-1 jet fuels using shadowgraph and phase Doppler anemometry," *Journal of Energy Resources Technology*, JERT 140(7): 072009, **2018**
- 23) K Kannaiyan and R Sadr, "The Effects of Nanoparticles as Fuel Additives on the Spray Characteristics of Gas-to-Liquid Jet Fuels," *Experimental Thermal and Fluid Sciences*, 87, 93-103, **2017**
- 24) T Zhang, J Alvarado¹, J. P. Muthusamy, A Kanjirakat, R Sadr, "Heat Transfer Characteristics of Double, Triple and Hexagonally-Arranged Droplet Train Impingement Arrays," *International Journal of Heat and Mass Transfer*, 110, 562-575, **2017**
- 25) K Kannaiyan, K Anoop and R Sadr, "Effect of Nanoparticles on the Fuel Properties and Spray Performance of Aviation Turbine Fuel," *Journal of Energy Resources Technology*, 139(3) 032201, **2017**
- 26) G Yu, O Askari, F Hadi, Z Wang, H Metghalchi, K Kannaiyan and R Sadr, "Theoretical Prediction of Laminar Burning Speed and Ignition Delay Time of Gas-to-Liquid Fuel," *Journal of Energy Resources Technology*, 139, 022202-1, **2017**
- 27) W L Cheng, A Saleem, and R Sadr, "Recent Warming Trend in the Coastal Region of Qatar," accepted for publication in *Theoretical and Applied Climatology*, **128**, 193–205 **2017**
- 28) T Zhang, J. P. Muthusamy, J Alvarado¹, A Kanjirakat, R Sadr, "Experimental and Numerical Visualization of Droplet-Induced Crown Splashing Dynamics," *Journal of Heat Transfer*, 139 (2), 020909-1, **2017**
- 29) W L Cheng, K Kannaiyan, R Sadr, and A Han, "Fluid dynamics inside a mini-scale microbial energy harvesting system", *International Journal of Scientific and Engineering Research*, 7 (11), pp.1-7, **2016**
- 30) K Anoop, R Sadr, R Yrac, and M Amani, "High-pressure rheology of alumina-silicon oil nanofluids," *Powder Technology*, 301, 1025-1031, **2016**
- 31) K Anoop, and R Sadr, "Near-wall Thermometry Using Brownian Motion of PIV Particle Tracers Applied Thermal Engineering," *International Journal on Advances in Systems and Measurements*, 9(1&2), 38-47, **2016**
- 32) T Zhang, J Alvarado, J P Muthusamy, A Kanjirakat, R Sadr, "Effects of Screen Laminates on Droplet-Induced Film Hydrodynamics and Surface Heat Transfer," *Journal of Heat Transfer*, 138(8):080902-080902-6, **2016**
- 33) G Yang, C Erbay, S Yi, P Figueiredo, R Sadr, A Han, and C Yu, "Bifunctional nano-sponges serving as non-precious metal catalysts and self-standing cathodes for high performance fuel cell applications," accepted for publication, *Nano Energy*, **2016**
- 34) A Kanjirakat and R Sadr, "Near-wall velocity profile measurement for nanofluids," *AIP Advances*, 6, 015308, **2016**
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- 50) K Anoop, and R Sadr, "nPIV Velocity Measurement of Nanofluids in the Near-Wall Region of a Microchannel," *Nanoscale Research Letters* **7**, 284, **2012**
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- 55) R Sadr, M Yoda, P Gnanaprakasam, and A T Conlisk, "Velocity Measurements Inside the Diffuse Electric Double Layer in Electroosmotic Flow," *Applied Physics Letters* **89**, 044103 **2006**
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- 68) R. Homssi, A. Abdalla, K. L. Roja, R. Sadr, and E. Masad, "Rheology of Asphalt Binders Modified with Aluminum Oxide Nanoparticles," 7th Thermal and Fluids Engineering Conference, TFEC- 2022-40929 **2022**
- 69) A Kanjirakat, A Carvero, R Sadr, M Amani, "Influence of CNT-Nanoparticles in the Filtrate Characteristics and Filter Cake Formation of a Water-Based Drilling Fluid," 5th Thermal and Fluids Engineering Conference, TFEC-2020-32112 **2020**
- 70) K Kannaiyan and R Sadr, "Effect of metal nanoparticles addition on alternative and conventional jet fuel sprays at high operating conditions," 5th Thermal and Fluids Engineering Conference, TFEC-2020-32077 **2020**
- 71) A Kanjirakat, A Carvero, R Sadr and, M Amani, "An Investigation of Performance of Surfactants added to Drilling Fluids for Wellbore Cleaning in Carbonate Fields," DOI 10.3997/2214-4609.201903125, Third EAGE WIPIC Workshop: Reservoir Management in Carbonates, Doha, **2019**
- 72) W L Cheng, R Sadr and A Han, "A Comprehensive Study of Asymmetric Micro-Droplet Splitting in T-junction," accepted for publications ASME-JSME-KSME Joint Fluids, AJKFLUIDS2019-5284, July **2019**
- 73) A Kanjirakat, M Amani, A Carvero and R Sadr, "Effect of SiO₂ Nanoparticle Addition on the Filtrate Characteristics of Drilling Fluids Used in Carbonate Reservoirs," EarthDoc, Third EAGE WIPIC Workshop: Reservoir Management in Carbonates, November 18-20, **2019**
- 74) A Kanjirakat and R Sadr, "Study of microfluidic system based on one-step blood cell-free region for biomarker detection," accepted for publications ASME-JSME-KSME Joint Fluids, AJKFLUIDS2019-5301, July **2019**
- 75) K Kannaiyan and R Sadr, "Spray characteristics of alternative jet fuel at elevated ambient conditions," accepted for publication at ASME Turbo Expo, GT2019-90115, **2019**
- 76) M Soltan, B Al Abdulla, A Al Dosari, K Kannaiyan and R Sadr, "Spray performance of alternative jet fuel based nanofuels at high-ambient conditions" IMECE, Pittsburgh, **2018**
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- 80) T Zhang, J Alvarado, J Muthusamy, A Baby and R Sadr, Experimental Investigation of Droplet Train and Circular Jet Impingement Cooling," HT2007-5007, **2016**
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- 82) T Zhang, J Muthusamy, J Alvarado, A Kanjirakat and R Sadr, “Experimental and Numerical Characterization of Droplet-Induced Spreading-Splashing Transition in Surface Cooling,” HT2016-7226, July 10-14, Washington, DC, **2016**
- 83) G. Yu, O. Askari, F. Hadi, Z. Wang, H. Metghalchi, Kumaran Kannaiyan, and R. Sadr, “Theoretical prediction of laminar burning speed and ignition delay of gas-to-Liquid fuel,” Proceedings of International Mechanical Engineering Congress & Exposition, IMECE 65440, Nov. 11-17, Phoenix, Arizona, **2016**
- 84) K Kannaiyan and R Sadr, “Influence of Nanoparticles on Spray Performance of Alternative Jet Fuels,” ASME Turbo Expo 57778, South Korea, June **2016**
- 85) A Yamine, K Kannaiyan, and R Sadr, “Spray Visualization of Alternative Aviation Turbine Fuel embedded with Metallic Nanoparticles,” 10th Pacific Symposium on Flow Visualization and Image Processing, Naples, Italy, 15-18 June, **2015**
- 86) F A Saleh, K Anoop and R Sadr, “Formulation and property measurement of nano-particle suspension in aviation fuel,” AJK2015-13684, ASME-JSME-KSME Joint Fluids Engineering Conference 2015, Seoul, Korea, (Accepted, Not attended due to health concerns)! **2015**
- 87) T Zhang, J L Alvarado, J Muthusamy, A Kanjirakat, R Sadr, “Hydrodynamics and heat transfer of micro-scale surface flows induced by triangulated droplet stream impingement array,” TFESC-12576, Proceedings of the 1st Thermal and Fluid Engineering Conference, TFESC, New York City, USA, August 9-12, **2015**
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- 89) S Srinivasan, S J Al-Suwaidi, and R Sadr, “Design of a mini Heat Sink Based on Constructal Theory for Electronic Chip Cooling,” ASME paper FEDSM2014-22021, Chicago, July **2014**
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- 91) K Kannaiyan and R Sadr, “Experimental study on the influence of fuel properties on spray performance of alternative jet fuel,” ASME Turbo Expo 2014, 25842, Germany, June **2014**
- 92) W L Cheng, R Sadr, “A Numerical Approach in Predicting Flow Field Induced by Randomly Moving nano Particles”, ASME Micro/Nanoscale Heat & Mass Transfer International Conference 2013-22113, Hong Kong, Dec **2013**
- 93) K Anoop and R Sadr, “Measurement of Optical Properties of Nanofluids and its Effects in Near-wall Velocimetry,” The Seventh International Conference on Quantum, Nano and Micro Technologies, August **2013**
- 94) J Cox, A Kanjirakat and R Sadr, “Application of nanofluids in a shell and tube heat exchanger,” submitted to ASME International Conference on Nanochannels, Microchannels, and Minichannels 2013-73104, June 16-19, Saporro, Japan, **2013**
- 95) A Kanjirakat, K Taimour, M Al-Jubouri, R Sadr, and M Amani, “Viscosity Measurements of Nanofluids at Elevated Temperatures and Pressures,” ASME- International Conference on Nanochannels, Microchannels, and Minichannels 2013-73103, June 16-19, Saporro, Japan, **2013**

- 96) K Kannaiyan and R Sadr, "Spray Characteristics of Fischer-Tropsch Alternate Jet Fuels," ASME Turbo Expo 2013, GT2013-95761, June 3- 7, San Antonio, Texas, **2013**
- 97) K Anoop and R Sadr, "Evanescent Wave Based Near-wall Thermometry Utilizing Brownian Motion," The Sixth International Conference on Quantum, Nano and Micro Technologies, paper No.80209, August, (*Winner of best IARIA paper award*) **2012**
- 98) K Kannaiyan and R Sadr, "Spray Characterization of Gas-to-Liquid Synthetic Aviation Fuel," 12th International Conference on Liquid Atomization and Spray Systems, ID: 1198, September 2-6, Heidelberg, Germany, **2012**
- 99) K Anoop and R Sadr, "Heat transfer performance of SiO₂-water nanofluid in heat exchangers," ASME paper HT2012-58291, July **2012**
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- 101) A
Singha and R Sadr, "Effect of Monthly Climatic Variability on Characteristic of Atmospheric Surface Layer – A Study in Qatar", The 23rd International Congress of Theoretical and Applied Mechanics, Beijing, China, August **2012**
- 102) D
Fyffe, J Moran, K Kannaiyan, R Sadr, A Al-Sharshani, "Effect of GTL-like Jet Fuel Composition on GT Engine Altitude Ignition Performance – Part I: Combustor operability", ASME Turbo Expo 2011: Power for Land, Sea and Air, GT2011-45487, Vancouver, Canada, June 6-10 **2011**
- 103) T Mosbach, G C Gebel, P Le Clercq, R Sadr and K Kannaiyan, A Al-Sharshani, "Investigation of GTL-like Jet Fuel Composition on GT Engine Altitude Ignition and Combustion Performance Part II: Detailed Diagnostics", ASME Turbo Expo 2011: Power for Land, Sea and Air, GT2011-45510, Vancouver, Canada, June 6-10, **2011**
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- 105) A Toyama and R Sadr, "Innovations in Fluid Mechanics Laboratory through the Application of Industrial Scale Equipment and Educational Software Tools," ASEE AC 2010-1538, June 20-23, Louisville, KY **2010**
- 106) M Mittal, H J Schock, and R Sadr, "Effects of Charge Motion Control on In-Cylinder Flow Measurement using MTV," IMECE2008-66490, **2008**
- 107) R Sadr, H Li, and M Yoda, "Bias Due to Hindered Brownian Diffusion in Near-Wall Velocimetry," 6th International Symposium on Particle Image Velocimetry, Pasadena, CA, **2005**
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Submitted Journal Publications:

- 113) R Sadr, Y Li, “Sea Breeze Characteristics in Coastal Qatar Peninsula,” *Boundary-Layer Meteorology*, **2023**

Conference Presentations:

This list only includes the presented talks after 2010 (17 presentations from 2001 to 2009).

- 1) R Sadr, Y Li, “Study of Sea/Land-Breeze Condition in Atmospheric Boundary Layer in the Persian Gulf, Qatar,” 76th Annual Meeting of APS Division of Fluid Dynamics, Nov, **2023**
- 2) R Sadr, Y Li, “Daily stability patterns of atmospheric boundary layer in Coastal region,” 73rd Annual Meeting of APS Division of Fluid Dynamics, Nov, **2020**
- 3) Y Li, R Sadr, “Climate and atmospheric turbulence analysis during Shamal events in Persian Gulf,” 72st Annual Meeting of APS Division of Fluid Dynamics, Nov, **2020**
- 4) Y Li, R Sadr, “Turbulent characteristics analysis of atmospheric surface layer in coastal region of Qatar,” 72st Annual Meeting of APS Division of Fluid Dynamics, Seattle, Nov, **2019**
- 5) A Kanjirakat, H Zang, R Sadr, A Han, “A CFD-based design of a microfluidic platform for separating blood cells,” 72st Annual Meeting of APS Division of Fluid Dynamics, Seattle, USA, Nov 13-26, **2019**
- 6) R Sadr, Y Li, “Annual variability of atmospheric surface layer characteristics and wind/temperature patterns in Qatar,” 72st Annual Meeting of APS Division of Fluid Dynamics, Seattle, USA, Nov 13-26, **2019**
- 7) A Kanjirakat, R Sadr, J L. Alvarado, “ μ -Particle Tracking Velocimetry in the Impingement Zone of a micro Droplet Train.” 71st Annual Meeting of APS Division of Fluid Dynamics, Atlanta, Georgia, USA, Nov 18-20, **2018**

- 8) Reza Sadr, W L Cheng A Han, “An Analysis of the Droplet Splitting Ratio in Asymmetric T-junction,” 71st Annual Meeting of APS Division of Fluid Dynamics, Atlanta, Georgia, USA, Nov 18-20, **2018**
- 9) K Kannaiyan and R Sadr, “Effect of Nanoparticles on the Spray Characteristics of Jet Fuels at Elevated conditions,” 71st Annual meeting of the American Physical Society-Division of fluid dynamics, Atlanta, GA, USA, Nov. 18-20, **2018**
- 10) Anoop K, Sadr R, Yarc R and Amani M, “Rheological studies of a water based drilling mud suspended with carbon nano particles” accepted to QF-Annual Research Conference, Doha Qatar, 20-22 March **2018**
- 11) K Kannaiyan and R Sadr, “Spray visualization of alternative fuels at hot ambient conditions,” 70th Annual meeting of the American Physical Society-Division of fluid dynamics, Nov. 19-21, Denver, Colorado, **2017**
- 12) W L Cheng and R Sadr, “A Numerical Analysis of Droplet Breakup in Asymmetric T-Junctions with at intermediate to large capillary numbers,” 70th Annual meeting of the American Physical Society-Division of fluid dynamics, Nov. 19-21, Denver, Colorado, **2017**
- 13) K Anoop, R Sadr, R Yarc and M Amani, “High-pressure high-temperature rheological studies of colloidal suspensions with carbon nanotub,” 70th Annual meeting of the American Physical Society-Division of fluid dynamics, Nov. 19-21, Denver, Colorado, **2017**
- 14) R Sadr, K Kannaiyan and K Anoop, “Nanofuels: Preparation and its application in pressure atomization”, 14th International Conference on Nanosciences & Nanotechnologies (NN17), Thessaloniki, July 4-7, Greece, **2017**
- 15) K Kannaiyan, R Sadr, and H Metghalchi, “Spray and Combustion Performance of GTL fuels”, 6th TAMUQ Annual Research and Industrial Partnership Showcase, April 20th, Doha, **2017**
- 16) Anoop K, Reza S and Alvarado J, “ Fluid dynamics in micro-droplet impingement cooling” T 6th TAMUQ Annual Research and Industry Partnership Showcase, April 20th, Doha, **2017**
- 17) R Sadr and K Anoop ”Thermo-Fluid prospects of nanofluids”, 6th International conference on Nanotechnology (ICN2017), Dubai, 9-10 February **2017**
- 18) K Kannaiyan and R Sadr, “Comparison of near nozzle atomization characteristics of drop-in and conventional jet fuels,” 69th Annual meeting of the American Physical Society-Division of fluid dynamics, vol. 61 (20), Nov. 20-22, Portland, Oregon, **2016**
- 19) D Samanta, W L Cheng and R Sadr, “Seasonal Variability of Atmospheric Surface Layer Characteristics and Weather Pattern in Qatar,” 69th Annual meeting of the American Physical Society-Division of fluid dynamics, vol. 61 (20), Nov. 20-22, Portland, Oregon, **2016**
- 20) W L Cheng and R Sadr, “A Numerical Analysis of Droplet Breakup in Asymmetric T-Junctions with Different Outlet Pressure Gradients,” 69th Annual meeting of the American Physical Society-Division of fluid dynamics, vol. 61 (20), Nov. 20-22, Portland, Oregon, **2016**

- 21) A Kanjirakat, R Sadr, T Zhang, J Muthusamy, J Alvarado “Hydrodynamics and PIV study in the impingement zone formed by a droplet train,” 69th Annual meeting of the American Physical Society-Division of fluid dynamics, vol. 61 (20), Nov. 20-22, Portland, Oregon, **2016**
- 22) A Kanjirakat, K. Kannaiyan, and R Sadr, “Preparation of aviation fuel based nanoparticle colloids and prospect of its application in pressure atomizers,” 6th International Colloids Conference, Berlin, June **2016**
- 23) D Samanta and R Sadr, “Observational study of atmospheric surface layer and coastal weather in northern Qatar,” EGU general assembly, EGU2016-11317, **2016**
- 24) R. Sadr, W L Cheng, D Samanta, “Is Qatar climate changing? A possible side effect of industrial boom,” 5th TAMUQ-Industry forum, Doha, April **2016**
- 25) W Cheng, A Han and R. Sadr, “A Numerical Investigation of Asymmetric Droplet Breakup in a T-junction,” (poster presentation) 5th TAMUQ-Industry forum, Doha, April **2016**
- 26) D Samanta, R Sadr, B Guo and W Javad, “Air flow Pattern in the Vicinity of Photovoltaic Panels,” (poster presentation) 5th TAMUQ-Industry forum, Doha, April **2016**
- 27) A Kanjirakat, R Sadr, R Yrac and M Amani, “Rheology of Nano-sized Particles Suspension at High Pressures,” (poster presentation) 5th TAMUQ-Industry forum, Doha, April **2016**
- 28) D Samanta and R Sadr, “Study of Atmospheric Condition in the Coast Memberal Region of Qatar,” (poster presentation) 5th TAMUQ-Industry forum, Doha, April **2016**
- 29) K. Kumaran and R. Sadr, “Application of Nanoscale fuel additives in Aviation fuels,” (poster presentation) 5th TAMUQ-Industry forum, Doha, April **2016**
- 30) K Kannaiyan and R Sadr, “Effect of Fuel additives on Spray Performance of Alternative Jet Fuel,” 68th Annual meeting of the American Physical Society-Division of fluid dynamics, vol. 60 (21), Abstract No. D14.00001, Boston, Massachusetts, Nov. 22-24, **2015**
- 31) W L Cheng and R Sadr, “Hydrodynamics and mass transfer characteristics of laminar bioelectrochemical systems- a summary,” 68th Annual meeting of the American Physical Society-Division of fluid dynamics, vol. 60 (21), Abstract No: L40.00009, Boston, Massachusetts, Nov. 22-24, **2015**
- 32) K Anoop and R Sadr, “Measurement of the near-wall velocity profile for a nanofluid flow inside a microchannel,” 68th Annual meeting of the American Physical Society-Division of fluid dynamics, vol. 60 (21), Abstract No. E11.0001, Boston, Massachusetts, Nov. **2015**
- 33) T Zhang, J Alvarado, J P Muthusamy, A Kanjirakat, and R Sadr, “Effects of High Frequency Droplet Train Impingement on Spreading-Splashing Transition, Film Hydrodynamics and Heat Transfer,” 1st ASTFE, New York City, August **2015**
- 34) T Zhang, J P Muthusamy, J Alvarado, A Kanjirakat, and R Sadr, “Effects of High Frequency Droplet Train Impingement on Crown Propagation Dynamics and Heat Transfer,” 1st ASTFE, New York City, August **2015**

- 35) T Zhang, J Alvarado, A Kanjirakat, R Sadr, “Hydrodynamics of micro-scale surface flows induced by triangulated droplet stream impingement array”, 67th Annual Meeting of the American Physical Society Division of Fluid Dynamics, M15.00001, San Francisco, CA, **2014**
- 36) T Zhang, J Alvarado, A Kanjirakat, R Sadr, “Experimental characterization and numerical simulation of crown propagation induced by impingement of droplet train”, 67th Annual Meeting of the American Physical Society Division of Fluid Dynamics, M15.00008, San Francisco, CA, **2014**
- 37) R Sadr, K Kannaiyan, “Comparison of Global Sizing Velocimetry and Phase Doppler Anemometry measurements of alternative jet fuel sprays”, 66th Annual Meeting of the American Physical Society Division of Fluid Dynamics, H14.00001, Pittsburg, PA, **2013**
- 38) W L Cheng, R Sadr, “A Statistical Perspective on the Effects of Brownian Particle Movements on the Induced Fluid Flow Field”, 66th Annual Meeting of the American Physical Society Division of Fluid Dynamics, M7.00001, Pittsburg, PA, **2013**
- 39) A Kanjarakat, R Sadr, “Rheological assessment of nanofluids at high pressure high temperature”, 66th Annual Meeting of the American Physical Society Division of Fluid Dynamics, M7.00003, Pittsburg, PA, **2013**
- 40) K Kannaiyan, R Sadr, “Experimental study on spray characteristics of alternate jet fuels using Phase Doppler Anemometry”, 66th Annual Meeting of the American Physical Society Division of Fluid Dynamics, R28.00008, Pittsburg, PA, **2013**
- 41) R Sadr, A Singha, “Spectral characteristics of atmospheric surface layer turbulence in Qatar”, 65th Annual Meeting of the American Physical Society Division of Fluid Dynamics, R21.00001, San Diego, CA, **2012**
- 42) W L Cheng, A Kanjarakat, R Sadr, “On the Effects of Brownian particle Movement on the Overall Fluid Velocity Distribution”, 65th Annual Meeting of the American Physical Society Division of Fluid Dynamics, G30.00006, San Diego, CA, **2012**
- 43) A Kanjarakat, R Sadr, “Optical properties of nanofluids and its implication in nPIV measurements”, 65th Annual Meeting of the American Physical Society Division of Fluid Dynamics, R21.00003, San Diego, CA, **2012**
- 44) K Kannaiyan, R Sadr, “Spray Characterization of Gas-to-Liquid Synthetic Jet Fuels”, 65th Annual Meeting of the American Physical Society Division of Fluid Dynamics, R21.00002, San Diego, CA, **2012**
- 45) R Sadr, A Singha, “An in-situ calibration technique for a four-wire hot-wire anemometer in conjunction with a sonic anemometer”, 64th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Baltimore, MD, **2011**
- 46) A Kanjarakat, R Sadr, “Near wall velocity measurement of nanofluids using evanescent wave-based PIV technique”, 64th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Baltimore, MD, **2011**
- 47) K Kannaiyan, R Sadr, “Spray Characterization of Gas-to-Liquid Synthetic Jet Fuels”, 64th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Baltimore, MD, **2011**

- 48) K Tanimizu, R Sadr, D Ranjan, "Thermal-hydraulic behavior of Sc-CO₂ in a horizontal circular straight tube", 64th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Baltimore, MD, **2011**
- 49) A Singha, R Sadr, "Parameterization of turbulence characteristics of Atmospheric surface layer in Qatar", 64th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Baltimore, MD, **2011**
- 50) Y Liao, A Singha, J M Kaihatu, R Sadr, "The Investigation of Wind Waves in Persian Gulf by Multi-level Long-term Hindcasts and In-situ Measurements", 64th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Baltimore, MD, **2011**
- 51) E Maric, M Metzger, A Singha, R Sadr, "Atmospheric stability analysis over statically and dynamically rough surfaces", 64th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Baltimore, MD, **2011**
- 52) K Kumaran & R Sadr, "Numerical simulation of a coaxial turbulent jet with and without discrete particles", Sixth International Conference on Computational and Experimental Methods in Multiphase and Complex Flow, Kos, Greece, 15 - 17 June, **2011**
- 53) M AlAthba, K Kannaiyan, and R Sadr, "Development of a Spray Characterization Experimental Facility," QF Research Forum, Doha, Qatar, November **2011**
- 54) O Bouhali, R Sadr, A Sheharyar, "Massive parallel simulation of Brownian motion of Nano-particles Using Graphical Processing Units (GPU)," QF Research Forum, Doha, Qatar, November **2011**
- 55) T Mosbach¹, G C Gebell, P Le Clercq, R Sadr, K Kannaiyan and A Al-Sharshani, "Investigation of synthetic paraffinic kerosenes composition on aviation turbine altitude ignition and combustion performance," QF Research Forum, Doha, Qatar, November **2011**
- 56) R Sadr, K Kannaiyan, J Moran, D Fyffe, T Mosbach, P Le Clercq, "GTL Fuels and their effects on Aircraft Gas Turbine Altitude Ignition", 63th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Long Beach, CA, **2010**
- 57) A Singha, R Sadr, "Experimental Study of Atmospheric Wind and Ocean Interaction", 63th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Long Beach, CA, **2010**
- 58) A Kanjirakat, R Khader, R Sadr, "Evanescent Wave Based Near-wall Thermometry Utilizing Brownian Motion", 63th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Long Beach, CA, **2010**
- 59) K Kannaiyan, R Sadr, "Numerical Simulation of particle laden coaxial turbulent jet flows", 63th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Long Beach, CA, **2010**
- 60) R Sadr, K Kannaiyan, J Moran, D Fyffe, Thomas Mosbach, P. Le Clercq, "GTL Fuels and their effects on Aircraft Gas Turbine Altitude Ignition "Detailed Diagnostics", QF Research Forum, Doha, Qatar, November, **2010**

Part 4: Invited Talks, Keynote Speeches, Industry Reports

Invited Keynote Lectures:

- 1) Sidra Medical center, “Ultrasensitive Lab-on-a-Chip Integrated Photonic Sensors for Point-of-care Blood Analysis,” Doha, Qatar, **2023**
- 2) Texas A&M AGRILIFE research, “Atmospheric pattern and Climate change in Qatar.” Weslaco, Texas, May **2019**
- 3) R Sadr, A Han, and C Yu, “Microfluidic Platforms with Application of Nano Technology for Microbial Wastewater Treatment and Power Generation”, Nano Medicine, Dubai, November **2016**
- 4) UN Climate Change conference, “Atmospheric surface layer study in the coastal region of Qatar”, COP18, Doha, December **2012**
- 5) The 5th International Conference on Quantum, Nano and Micro Technologies, “Nano-Particle Image Velocimetry (nPIV); Data Reduction Challenges” Nice, France, August 21-27, **2011**
- 6) American Institute of Chemical Engineers, “Near-Wall Measurements in Electroosmotic Flow and Inside the Diffuse Electric Double Layer,” R Sadr and M Yoda, AIChE-33278 Cincinnati, OH, October 30 – November 4 **2005**
- 7) International Conference on Advanced Optical Diagnostics in Fluids, Solids and Combustion, “Applications of Nano-particle Image Velocimetry (nPIV) for Measuring Near-Wall Velocity Fields with Submicron Spatial Resolution,” M Yoda and R Sadr, VSJ-SPIE04 Tokyo, Japan, December 4 – 7, **2004**
- 8) 42nd AIAA Aerospace Sciences Meeting, “Nano-particle Image Velocimetry (nPIV): A New Technique for Measuring Near-Wall Velocity Fields with Submicron Spatial Resolution,” M Yoda and R Sadr, AIAA Paper. 2004–754, Reno, NV, January 5 - 8, **2004**

Invited Talks:

- 9) MEEN 681 Seminar series, “Nanoparticles in Fluids for Engineering Applications, MEEN-TAMU, USA, February **2018**
- 10) R Sadr, “Nanofluids-its application and prospects”, 6th Global Experts Meeting & Expo on Nanomaterials and Nanotechnology, Dubai, April **2016**
- 11) International Conference on Energy, Materials and Nanotechnology (EMN), “Investigation of nanofuel spray and droplet formation”, R Sadr and K Kannaiyan,, May 8-11, Phuket, Thailand, B25, **2015**
- 12) Final submission report/presentation for GTL combustion consortium, Doha, Qatar, “Combustion Project,” June 28th, **2012**
- 13) Steering committee meeting, London, London UK, “Spray Characterization’ - Gas-to-Liquid Synthetic Jet Fuel, combustion group,” March 29th, **2012**
- 14) Steering committee report and presentation, Doha, Qatar, “Spray Characterization’ - Gas-to-Liquid Synthetic Jet Fuel,” November 30th, **2011**

- 15) North Eastern University, Boston, “Near wall Fluid Velocity Measurement at Micro/Nano Scale,” November 18th, **2011**
- 16) Technical committee report and presentation, Chester, UK, “In-depth Spray Characterization of GTL Fuels - Progress update,” October 6th, **2011**
- 17) Technical Review Meeting for GTL Jet Fuel Program, Stuttgart, Germany, “In-depth Spray Characterization of GTL Fuels - Progress update”, March 3rd, **2011**
- 18) Qatar Foundation Research Forum, December, Doha, Qatar, “GTL Fuels and their effects on Aircraft Gas Turbine Altitude Ignition”, December **2010**
- 19) University of North Texas, Denton, TX, “Fluid Mechanic Measurements at Nano/Micro Scale in Near Wall Region,” May **2007**
- 20) University of Utah, Salt Lake City, UT, “Near-Wall Measurements in Electroosmotic Flow and Inside the Electric Double Layer,” February **2007**
- 21) University of Utah, Solids and Combustion, Salt Lake City, UT, “Fluid Mechanic Measurements at Nano/Micro Scale in Near Wall Region,” February **2007**
- 22) New York University, Stony Brook, NY, “Fluid Mechanic Measurements at Nano/Micro Scale in Near Wall Region,” May **2007**
- 23) University of California Riverside, Riverside, CA, “Nano/Micro Scale Measurements in Fluid Mechanics,” May **2004**

Industry Reports:

- 1) R Sadr, K Kannaiyan, “In depth characterization of synthetic Gas-to-Liquid (GTL) Fuel Combustion Performance in Current & Future Gas Turbine Engines; Spray characteristics,” Final report to QSTP funded consortium for GTL combustion, November **2012**
- 2) M Mittal, R Sadr, “Stereoscopic Molecular Tagging Velocimetry for In-Cylinder Flow Field Measurements,” MMRI final report (<http://www.mmrlc.com/>), **2007**
- 3) R Sadr, C K Aidun and M Yoda, “Novel Molecular Velocimetry Techniques in Dilute Fiber Suspensions for Headbox Flows,” Report for Institute of Paper Science and Technology (<http://www.ipst.gatech.edu/>), February **2006**

Outreach activities:

- 1) “Research studies link between wind and waves”, Gulf time, January 10th, **2013**
- 2) “Taimour succeeds in helping Higher Efficiency in Industrial Power, A research About Enhancing Lubricants’ Viscosity”, Al-Shababie (*For Youth*), November 29, **2012**
<http://www.raya.com/File/Get/%208d1d5f4d-d374-413c-a3a7-8fd534b6357d#pagemode=thumbs>
- 3) “Researchers build the case for wind and wave studies in Qatar”, QNRF newsletter, issue 10, November **2012**
http://qnrfnewsletter.org/issue10/funded_research2.php
- 4) “Nanotechnology project wins TAMUQ’s top award”, Gulf Times, April 29th, **2011**

Part 5: Teaching Activities

Texas A&M University at Qatar and G.W. Woodruff School of Mechanical Engineering at Georgia Tech Savannah do not offer any graduate courses. Texas A&M University at Qatar follows the same program and offers the same degree as those offered at College Station, USA. We received ABET accreditation in 2009 and are currently preparing for another ABET visit in 2014.

- Engineering Imaging: Creative Imaging for Engineering and Science, (MEEN 489) Spr. 2023
Texas A&M University Qatar. This is an undergraduate/graduate class, mostly PhD students. In this course, we explore a range of experimental techniques and optical methods to create images for science and engineering analysis. This course is more focused on, but not limited to, fluid flow imaging as an example.
- Experimental Physics & Engineering: (MEEN 216) Summer 2023
Texas A&M University at Qatar. A project-based course addressing engineering applications of key topics in physics (mechanics) to build cross-discipline engineering skills for analysis, design, and problem-solving.
- Engineering Imaging: The Physics and Art of Fluid Flow (ENGR 489/689) Fall 2019
Texas A&M University, Texas. This is an undergraduate/graduate class, mostly PhD students. In this course, we explore a range of experimental techniques and optical methods to create images for science and engineering analysis. This course is more focused on, but not limited to, fluid flow imaging as an example.
- Turbulence Measurement and Analysis (MEEN 637) Spring 2019
Texas A&M University, Texas. This is a graduate class, mostly PhD students. This class was thought with a new format by introducing both state-of-the-art and traditional experimental methods commonly used for turbulence measurements. The student activities were directed to improve their experimental skills. They mostly worked on their choice of the topics, develop experiment designs, and prepared several presentation and reports of their work.
- Fluid mechanics (MEEN344) 2017 – 2020
Texas A&M University, Texas. The student should attain understanding of fundamental laws of fluid mechanics, hydrostatics, conservation of mass momentum and energy for isothermal fluids, potential flows, dimensional analysis, pressure loss in hydraulic systems, introduction into boundary layer and external flows.
- Principle of Thermodynamics (MEEN 315) 2017 – 2019
Texas A&M University, Texas. The student should attain an understanding of fundamental laws of thermodynamics, thermodynamic properties, equation of state, open/closed systems, and be able to apply for solving problems involving states, processes and basic cycles.
- Engineering Laboratory, Studio (MEEN 404) Fall 2018
Texas A&M University, Texas. This is a senior class for students mostly graduating. It involves systematic design of experimental investigations to meet needs within realistic constraints; student teams identify topics and develop experiment designs including: establishing the need; functional decomposition; requirements; conducting the experiment; analyzing and interpreting the results and written and oral reports documenting the objectives, procedure, analysis, and results and conclusion of two or three experiments.

- Principle of Thermodynamics (MEEN 315) Spring 2017
Texas A&M University at Qatar. The student should attain an understanding of fundamental laws of thermodynamics, thermodynamic properties, equation of state, open/closed systems, and be able to apply for solving problems involving states, processes and basic cycles.
- MEEN 480: Research Methods and Experiences (MEEM480) 2016 – 2017
Guiding undergraduate students to conduct scientific experiments. The research outcome of my 2016 students were presented in IMECE and published accordingly.
- Thermo-Fluids analysis and design (MEEN421) 2009 – 2016
Texas A&M University at Qatar. This course covers a review of thermodynamics, fluid mechanics, and heat transfer with a design and optimization flavor. It also includes a design project that is related to the subjects of the class.
- Heat Transfer (MEEN461) 2008 – 2016
Texas A&M University at Qatar. This course covers heat transfer by conduction, convection and radiation: steady state and transient conduction, forced and natural convection, black and gray radiation, multimode heat transfer and heat exchangers. It also includes a project on numerical methods in 2D/3D conduction.
- Research methods and experiences (MEEN489) 2016 – 2017
Texas A&M University at Qatar. This course provides the opportunity for the students to learn and practice how to conduct research. The course is a multi-disciplinary effort that includes an actual research project for the student in their own department with a relevant faculty.
- Heat Transfer Laboratory (MEEN465) 2009 – 2020
New laboratory in Texas A&M University at Qatar
- Fluid Mechanic Laboratory (MEEN345) 2009 – 2016
New laboratory in Texas A&M University at Qatar
- Intermediate Design, Studio (MEEN402) Spring 2013
Texas A&M University at Qatar
This is session 503 of the design course that has 8 students working in two different design projects. The work includes building the device, or a prototype, preparing a final report, and a brochure
- Direct Study (MEEN485) Spring 2012
Texas A&M University at Qatar
- Fluid mechanics (MEEN344) 2008
Texas A&M University at Qatar
- Fluid Mechanics (ME 3340) 2005 – 2008
Georgia Institute of Technology (Savannah, GA)
 - This course was presented at one campus and broadcast to two other campuses in a rotating order; Georgia Tech Savannah, Georgia Southern University, and Armstrong Atlantic State University.

- The course was prepared and thought using IT enabled facility
- Heat Transfer (ME 3345) 2005 – 2008
Georgia Institute of Technology (Savannah, GA)
 - This course was presented on one campus and broadcast to two other campuses in a rotating order: Georgia Tech Savannah, Georgia Southern University, and Armstrong Atlantic State University.
 - The course was prepared and thought using IT enabled facility.
- Undergraduate Research (ME 4699) 2006 – 2008
Georgia Institute of Technology (Savannah, GA)
- Teaching Assistant, Fluid Mechanics Laboratory (ME 3700) 1997 – 2002
University of Utah (Salt Lake City, UT)
- Teaching Assistant, Heat Transfer Laboratory (ME 3650) 1996 – 1997
University of Utah (Salt Lake City, UT)
- Fluid Mechanics Laboratory 1995 – 1996
Carleton University, (Ottawa, Canada)
- Refrigeration Systems 1991 – 1993
I.H. University, (Tehran, Iran)
- Fluid Mechanics, Heat Transfer, and Thermodynamics Laboratories 1991 – 1993
I.H. University, (Tehran, Iran)