

# SAMER FIKRY AHMED

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## Education

❖ **Doctor of Philosophy** [February 2007] in *Engineering*, Department of Engineering, **University of Cambridge**, Cambridge, United Kingdom.

**Thesis: Spark Ignition of Turbulent Non-Premixed Flames**

❖ **Master of Engineering** [December 2002], Mechanical Engineering Department, Faculty of Engineering, **University of Helwan**, Cairo, Egypt.

**Thesis: Thermal Loading and Emissions of Indirect Injection Diesel Engine Fueled by Jojoba Methyl Ester.**

❖ **Bachelor of Engineering** [May 1997], Mechanical Engineering Department, Faculty of Engineering, **University of Helwan**, Cairo, Egypt.

## Awards and Recognition

- **Qatar University Innovation Award** – Qatar University, November 14, 2023.
- **American Society of Mechanical Engineers (ASME) ISHOW – Global Winner (representing Africa and Middle East – one of 9 winners worldwide)** - for the startup “ClearExhaust”, June 14, 2023.

- **Entrepreneurship World Cup - National Qualifier** – Organized by Qatar Development Bank (QDB) for the startup “ClearExhaust”, Qatar, September 20, 2022.
- **American Society of Mechanical Engineers (ASME) Idea Lab – Global Finalist (out of 200 teams)** - for the startup “ClearExhaust”, August 31, 2022.
- **The Knowledge & Innovation, Technology, Entrepreneurship (KITE) startup program at Qatar University – 3<sup>rd</sup> Place Winner** – for the startup “ClearExhaust”, Qatar, March 31, 2022.
- **Qatar Development Bank (QDB) Hackathon – Winner – Manufacturing theme**, for the invention “A Smokeless Exhaust Tube”, Qatar, October 5, 2021.
- **Study UK Alumni Awards- Entrepreneurial Award- Global Finalist** – representing the Middle East and North Africa region, the British Council, UK, April 14, 2021.
- **Study UK Alumni Awards-Professional Achievement Award-Finalist**, the British Council, Qatar, February 2, 2021.
- **Certificate of Outstanding Contribution in Reviewing**, awarded from Elsevier for the contribution in reviewing articles, February 8, 2018.
- **Academic and Research Excellence Award**, College of Engineering, Qatar University, June 5, 2017.
- **UK-Gulf Institutional Links 2016 Award**, from the British Council for a collaborative research project with Newcastle University, March 1, 2017.
- **Recognized Reviewer Status**, awarded from Elsevier for the contribution in reviewing articles, September 27, 2016.
- **Best Faculty Poster Award**, in the QU annual research forum, May 3, 2016, Doha, Qatar.
- **Key Scientific Article Certificate** is awarded to my FUEL journal paper for contributing to excellence in engineering, scientific and industrial research by the Advances in Engineering Institute, March 11, 2015, Canada.
- **Qatar Innovation Promotion Award** to develop a course animation video game as an innovative teaching and learning method, February 8, 2015
- **Best Poster Award**, in the 4th International Gas Processing Symposium, October 26–27, 2014, Doha, Qatar.
- **Who's Who in Engineering Higher Education (WWEHE)** [August 2013], have been selected by AcademicKeys.
- **Research Studentship** [January 2006 – December 2006] from Rolls-Royce plc collaborative research project on spark ignition, UK.
- **Fitzwilliam College Senior Scholarship** [December 2004 – December 2007] based on first class work, Cambridge University, UK.
- **Fellowship** [September 2004- current], Cambridge Overseas Trust, UK.

- **British Petroleum Cambridge Scholarship for Egypt** [October 2003 – October 2006] for PhD degree at Cambridge University.
- **Gold Medallist** securing **First Rank** at the Faculty level in addition to various awards for **academic excellence** including College and University Ranking at Undergraduate level.

## Employment History

- \* **ClearExhaust LLC, Doha, Qatar.**
  - Founder and CEO (November 2022 – Present)
- \* **Department of Mechanical and Industrial Engineering, Qatar University, Doha, Qatar.**
  - Full Professor (April 2020 – Present)
  - Associate Professor (March 2014 – April 2020)
  - Graduate program coordinator, September 2015 – September 2017.
  - Assistant Professor (September 2011 – March 2014)
- \* **Department of Mechanical Engineering, King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia**  
Assistant Professor (September 2008 – August 2011)
- \* **Mechanical Engineering Department, University of Helwan, Cairo, Egypt**  
Assistant Professor (January 2008 – September 2008)  
Teaching Assistant (October 2002 – December 2007)  
Demonstrator (January 1998 – October 2002)
- \* **Energie- und Kraftwerkstechnik, Technische Universität Darmstadt, Darmstadt, Germany**  
Visiting Scholar (June 2007)
- \* **Department of Engineering, University of Cambridge, Cambridge, UK**  
Research Associate (February 2007 – January 2008)

## Consulting Experience

- ❖ **Ministry of Municipal and Environment, Doha, Qatar.**

- Facilitator (February 2017 - September 2017).  
Conducting all the experimental work of the MoU between CENG and Ministry of Environment to convert their Truck to work with biogas.
- ❖ **Oryx GTL company, Doha, Qatar.**  
Researcher (September 2014 – September 2015).  
Testing the performance and emissions of a demo bus fueled with Oryx-GTL Fuel.
  - ❖ **General Electric (GE) Company, Doha, Qatar.**  
Researcher (June 2014 – present)  
Spray combustion and ignition of GTL fuels.
  - ❖ **Shell Company, Doha, Qatar**  
Researcher (August 2012 – July 2014)  
Combustion Characteristic Investigation of GTL fuels.
  - ❖ **Radwan Engineering Consultant Company, Cairo, Egypt**  
Designer (September 1997 – September 1999).  
Designing central air-conditioning, medical gas supply and hydraulic systems for different projects in Egypt and the Middle East.

## Research Interests

*My research lies in the general areas of energy conversion technologies and combustion, in particular in gas turbine combustion and in experimental methods for flames and fluid mechanics. In addition, my experience includes internal combustion engine science and alternative fuels for ICEs such as bio-fuels.*

### Spark ignition

- Design and control high voltage spark ignition system, which allows separate control for the spark voltage and duration.
- Investigation of the ignition probability in different turbulent non-premixed flames such as: turbulent jet, counter-flow and bluff-body flames.
- Investigation of the ignition probability in spray flames with a wide range of parameters like Sauter Mean Diameter (SMD), droplet velocities and air velocity.
- Study the effect of different spark parameters and different flow conditions on the successful of ignition.
- Examined the use of multiple-spark unit on improving the ignition behavior in recirculation spray flames.

- Visualization of the ignition event from the moment of spark to the flame stability by using high speed imaging.
- Investigating the structure of the flame front during propagation after the ignition by using OH-PLIF (Planar Laser Induced Florescence).
- Measuring the flame propagation speed.

### **Diagnostics**

- Experience in working with high-speed Particle Image Velocimetry (PIV) and high-speed OH-PLIF.
- Development of simultaneous mixture fraction measurements using *Acetone* PLIF.
- Time and space resolved OH-PLIF measurements to investigate Flame front structure after ignition.
- Measurements of the flow velocity with PIV.
- Measurements of simultaneous local velocity at the moment of spark using Laser Doppler Velocimetry (LDV) system.
- Measurements of the instantaneous mixture fraction at the moment of spark by using photomultiplier tube system, which used to calibrate the spark chemiluminescence with the local mixture fraction.
- Measurements of droplet size distributions with Phase Doppler Anemometry (PDA).
- Development of fine thermocouple traversing mechanism to measure the heat flux in the cylinder liner and cylinder head of a diesel engine.
- Measurements of hydrocarbon concentration using fast-response Flame Ionization Detectore (FID).
- NO<sub>x</sub>, CO, CO<sub>2</sub>, HC, SO<sub>x</sub> and smoke concentration measurements in the internal combustion engines using gas analyzer.

### **Renewable and Alternative Fuels.**

- Development of a chemical treatment operation to use Jojoba oil as a bio-fuel for diesel engines.
- Hydrogen production from rich combustion inside porous media to be used as a fuel in the fuel-cell manufacturing.
- Investigation of the combustion characteristics of GTL (Gas to Liquid) and alternative fuel blends.

### **Internal Combustion Engines and Emissions**

- Investigating the usage of Jojoba methyl ester in diesel engines in terms of thermal loading, performance and emissions.
- Measuring the performance and the emissions of the diesel engine working with dual fuel (natural gas) and fuel-water mixture.
- Development of a carbon capture device for mobile emission sources.
- Developing new induction manifold designs for high performance and low emission engines.

## Oxy-fuel Clean Combustion

- Experimentally investigate of the combustion characteristics of methane with oxygen and CO<sub>2</sub> capture at the interface of Ion Transport Membranes (ITM).

## Carbon capture technologies

- Developing of a new carbon capture device for mobile emission sources by employing a number of solvents and sorbents materials.
- Developing a smokeless exhaust tube for diesel engine that can eliminate 100% smoke emissions in addition to reducing other emissions by considerable amounts.

## Auto-ignition in turbulent flows

- Investigating the autoignition characteristics of GTL fuel droplets in a hot turbulent co-flow air.

## Direct Numerical Simulation (DNS) of Turbulent Combustion

- Investigating the forced ignition of premixed and non-premixed flames under a wide range of turbulence intensities using three-dimensional Direct Numerical Simulation (DNS) data.

## Technical Skills

- Experience in optical diagnostics
  - *Planar Imaging:*
    - High-Speed Planar Laser Induced Fluorescence (PLIF) of OH, Acetone; High-speed smoke visualization.
    - High-Speed Planar flow velocity imaging with PIV.
  - *Line of Sight techniques:*
    - Chemiluminescence, Glow discharge.
  - *Point flow measurements:*
    - Laser Doppler Velocimetry (LDV).
    - Phase Doppler Anemometry (PDA).
- Working experience with Nd:YAG, Sirah Dye, He-Ne, Cu Vapor lasers.
- Experience in using
  - Sensors: Gas Analyzer (CO, CO<sub>2</sub>, NO<sub>x</sub>, HC, SO<sub>x</sub>, smoke), fast FID, Photo-multiplier, photo-diodes, hot-wire anemometry, high-sensitivity transducers.
  - Cameras: High-speed-intensified-CMOS, ICCD, CCD, VHS/SVHS cameras

- Design and fabrication of scaled gas turbine combustors and turbulent jet burner.
- Experience in designing and controlling high-voltage spark ignition unit.
- Experience in internal combustion engines (Petrol engine and Diesel engine)
- Proficiency in image processing/signal processing in MATLAB.
- Familiar with Unix, Dos and WINDOWS environments
- Familiar with software like LABVIEW, Solid Works, AutoCAD, LATEX, MS Office

## Teaching Experience

### At Qatar University

- **Undergraduate Courses:**

Teaching the following courses:

- GENG 111 (Engineering Graphics) [average class size: 39]
- MECH 241 (Thermofluids) [31]
- CVEN 212 (Fluid Mechanics) – Civil Engineering Department [39]
- IENG 260 (Thermodynamics) [32]
- MECH 342 (Thermodynamics II) [44]
- MECH 343 (Fluid Mechanics) [26]
- MECH 447 (Heat Engines) – Elective course [45]
- IENG 479 (Special Topics – Renewable Energy)- Elective course [31]
- MECH 480/490 (Senior Project I/II) [4]
- MECH 499 (Independent study) [5]

- **Graduate Courses:**

- MECH 587 (Combustion and Emissions) [11]
- MECH 581 (Advanced Topics in Mech. Eng.) [4]
- MECH 652 (Advanced Special Topics II) [5]
- MECH 701 (Advanced Thermodynamics) [7]

- **Developing New Courses:**

- Participated in the establishment of the graduate program in Mechanical Engineering at Qatar University by developing the Thermofluids elective courses namely:
  - MECH 585: Advanced Thermodynamics.
  - MECH 586: Advanced Fluid Mechanics.
  - MECH 587: Combustion and Emissions.
  - MECH 588: Energy Conversion.
  - MECH 589: Solar Energy Utilization.

- ❑ Developing a new ISE Special Topics elective course entitled “Renewable Energy Management”, Qatar University, January 2019.
- ❑ Developing a new ME elective courses entitled “MECH 4xx: Renewable Energy and MECH 4xx: Combustion”, Qatar University, September 2012.

- **Senior Project Supervision:**

1. Title: Development of a Soot Collection System for the Novel Smokeless Exhaust Tube. September 2019 – June 2020. Group of three students. (Main supervisor).
2. Title: Developing a new Design of a Butterfly valve for low emission GDI Engines. February 2019 – January 2020. Group of seven students. (Main supervisor).
3. Title: Optimized induction manifold designs for high efficiency and low emissions Internal Combustion Engines. September 2018 – June 2019. Group of four students. (Main supervisor).
4. Title: Development of a smokeless exhaust tube for diesel engines. February 2018 – January 2019. Group of five students. (Main supervisor).
5. Title: Development of an air-cooled induction manifold to improve engine efficiency and reduce emissions during summer. September 2017 – June 2018. Group of five students. (Main supervisor).
6. Title: Development of a CO<sub>2</sub> absorption capture tube for mobile emissions sources. February 2017 – January 2018. Group of three students. (Main supervisor).
7. Title: Investigation of ignition characteristics of biogas and testing it on a modified truck engine. September 2016 – June 2017. Group of five students. (Main supervisor).
8. Title: Design and test of a CO<sub>2</sub>-capture vehicle exhaust pipe. February 2016 – January 2017. Group of three students. (Main supervisor).
9. Title: Development of a fuel induction system to avoid fuel separation for a diesel engine running on alternative fuel blends. September 2015 – June 2016. Group of three students. (Main supervisor).
10. Title: Developing of a renewable-fuel induction system for low-emission internal combustion engine. February 2015 – January 2016. Group of three students. (Main supervisor).
11. Title: Development of new induction manifold designs for high efficiency and low emissions internal combustion engines. February 2014 – January 2015. Group of two students. (Main supervisor).
12. Title: Improving the design of the fuel injection system for low fuel consumption diesel engines. February 2014 – January 2015. Group of two students. (Co-supervisor)



13. Title: Development of a test bench for measuring laminar flame speed of fuel mixtures. February 2013 – January 2014. Group of three students. (Main supervisor)
14. Title: Improving the performance of a carbon capture device for mobile systems. February 2013 – January 2014. Group of two students (Main supervisor)
15. Title: Development of a carbon capture device for mobile systems. February 2012 – January 2013. Group of two students. (Main supervisor).

### **At KFUPM – Saudi Arabia**

- **Undergraduate Courses:**

Teaching the following courses:

- ME203 (Thermodynamics I) [24]
- ME204 (Thermodynamics II) [21]
- ME210 (ME Drawing and Graphics) [20]
- ME432 (Internal Combustion Engines) – Elective course [31]

- **Graduate Courses:**

- ME537 (Combustion and Emissions) [5]

- **Developing New Courses:**

□ Developing a new ME elective course titled “ME433: Fundamentals of Combustion”, February 2010.

- **Senior Project Supervision:**

1. Title: CO<sub>2</sub> capture at the interface of Ion Transport Membranes (ITM) of oxy-combustion burner. September 2010 – July 2011. Group of seven students. (Co-supervisor)

### **At Cambridge University – UK**

- **Undergraduate Courses:**

Supervising and demonstrating the following courses:

- 4A5 (Turbulence).
- 3A5 (Energy and power generation).
- 1A-2B (Thermofluids).
- 1A (Engineering Drawing).

- **Project Supervision:**
  - Help in supervising two final-year students in their senior design projects, (2006-2008).

### **At Helwan University – Egypt**

- **Undergraduate Courses:**
  - Experience as a teaching assistant and a demonstrator, (1997-2003). Teaching the following courses: Thermodynamics, Fluid Mechanics, Heat Transfer, Mechanical Measurements, Engineering Drawing (AutoCAD) and Combustion.
- **Project Supervision:**
  - Help in supervising undergraduate students during the fourth year projects, (1999-2003).

### **Supervising Graduate Students**

Samahat Samim	Measurements of laminar flame speeds of alternative liquid fuel blends (Main supervisor).	09/13- 12/15	MSc, Qatar University
Abdellatif Mohammad Sadeq	Combustion Characteristics and Emissions of a DI Diesel Engine Utilizing New Induction Manifold Designs and Running on Alternative Fuel Blends (Main supervisor).	09/15 – 12/17	MSc, Qatar University
Fahd Moustafa Mohamed	Investigation of the flame stability of low calorific value fuel mixtures in a furnace burner (Main supervisor).	02/15– 05/18	MSc, Qatar University
Ihab Nabeel Naser	Developing an emission reduction tube for diesel engines (Main supervisor).	09/2017- 09/2019	MSc, Qatar University
Mohamed Hamed Elrentisy	Developing an air-cooled induction manifold for high performance and low	09/2017- 09/2019	MSc, Qatar

	emission engines (Main supervisor).		University
Houssameldin Mohamed Hassanin Meslam	Studying the thermal comfort of an indoor swimming pool (Main supervisor).	06/2020- 12/2022	MSc, Qatar University
Aboubaker Mohammed Ahmed Elbashir	Experimental investigation of the ignition delay of GTL fuel blends (Main supervisor).	09/2019- 05/2022	PhD, Qatar University
Abdellatif Mohammad Sadeq	Measurements of turbulent flame speeds of GTL fuel blends (Co-supervisor).	09/2019- 05/2022	PhD, Qatar University
Roba Tawfik Shady	Optimization of the high non-linear liquefaction process of natural gas (Main supervisor).	01/2022 05/2024	MSc, Qatar University

## Service

### At Qatar University

- **ME graduate program coordinator, September 2015 – September 2017.**
- **Elected as member of the Faculty Senate in QU for two years starting from December 2013.**
- **Develop AVL university partnership agreement between MIE department and AVL company to provide 30 free licenses of engine simulation software package to be used in the Heat Engine course, January 1, 2018 - Present**
- Participated in organizing **the International Arduino Workshop** at QU, March 2015.
- Appointed by the head of department to be a member of the **Industrial Advisory Board** of the department, February 2015.
- Supervising an undergraduate industrial Engineering student to win the second place in “**Qatalum Student Paper contest**”, December 2014.
- Supervising a group of three students to participate in “**Shell ideas360**” competition, December 2014.
- Develop a new webpage at the MIE department website for the outreach activities of the department, April 2014.
- Appointed by the department head as a chair of the Outreach committee, February 2014.
- Member of the diversity dimension of the Foundation of Excellence (FoE) Project, which is part of the First Year Experience (FYE) Strategic Initiative in QU, October 2013.
- Appointed by the college dean as a member of the focus group I: Quality Education Ad Hoc Committee, September 2013.

- Member of QU Faculty Advisors, QU Faculty Community, MIE Quality Assurance Committees, Qatar University, Qatar. September 2011 – present.
- Nominated as a member of the CAS-CENG Ad Hoc Committee to review the contents of the PHYS service courses for the College of Engineering students, December 2011- May 2012.
- Participated in the “Life is Engineering” project for high-school students by giving lectures on Internal Combustion Engines, College of Engineering, January 2012 – present.
- Member of the faculty search committee, Department of Mechanical and Industrial Engineering, February – June, 2013.

### **Outside Qatar University**

- Assessing Ecogy process that turns organic waste into usable energy requested by **the Ministry of Environment**, April 4, 2018 – Present.
- Conducting all the experimental work of **the MoU between CENG and Ministry of Environment** to convert their Truck to work with biogas, February 2017 - September 2017.
- Nominated by the Associate Dean to represent QU in the District Cooling Workshop organized by KAHRAMAA, Doha, Qatar, June 2014.
- Selected by the VP of research to represent Qatar University in Climate Change Impact Research Workshop, Doha, Qatar, May 28-29, 2014.
- Nominated as an expert in an Engineering court case, Doha, January 2014.
- Participated in “Star of Science” program by supervising one of the young inventors in developing a new connecting rod for reciprocating engines, Science and Technology Park, Doha, Qatar, January – May, 2013.
- Co-Champion of Saudi Aramco-KFUPM Strategic Research Partnership - Petroleum Fuel Formulation Theme, Saudi Aabia, September 2010 – August 2011.
- Coordinator of the ME210 (ME Drawing and Graphics) course, KFUPM, Saudi Arabia, September 2008 – August 2011.
- Director of the Heat Engine Lab, KFUPM, Saudi Arabia. September 2008 – August 2011.
- Member of the Promoting Committee, KFUPM, Saudi Arabia. September 2008 – August 2011.
- Laboratory equipment coordination, coordination of new laboratory construction, University of Cambridge, Cambridge, UK. September 2004 – January 2008.

<b>Professional Activities</b>
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- ✓ **Member of the Organizing Committee, 15<sup>th</sup> Global Conference on Energy Applications (ICAE2023), Doha, Qatar, December 3-7, 2023.**
- ✓ **Associate Editor, Journal of Energy Resources Technology ASME (indexed in Scopus and Web of Science), October 2018- present.**

- ✓ **Guest Editor, Special Issue on Oxygenated Biofuels: Combustion and Kinetics, Journal of Combustion (indexed in Scopus), Hindawi, June 19, 2018.**
- ✓ **Board Member, SUNRAY SOLUTIONS Co., ORLANDO, FL 32819, USA**
- ✓ Member of the organization committee of the 2<sup>nd</sup> International Conference on Energy and Indoor Environment for the Hot Climates (ASHREA). May 2016 – February 2017.
- ✓ Member of the technical committee of the 5<sup>th</sup> International Gas Processing Symposium, Doha, Qatar. November 2015 – November 2016.
- ✓ Associate Editor, International Journal of Petrochemical Science & Engineering (IPCSE), MedCrave Group, September 2016.
- ✓ Associate Editor, International Journal of Mechanical Systems Engineering, Graphy Publications, February 2015.
- ✓ Member of the Natural Gas, LNG and Alternative Energy Core Research Group initiated by the associate VP of research, Qatar University, January 2015.
- ✓ Selected by the associate VP of academics to be a member of the organization committee of the 13th International Conference on Fluid Control, Measurements and Visualization at Qatar University, December 2014.
- ✓ Chair of a technical session in the First International Conference on Energy and Indoor Environment for Hot Climates, ASHRAE Qatar Oryx Chapter, Doha, February 24-26,2014.
- ✓ A foundation member in establishing the Clean Energy and Energy Efficiency center at Qatar University, November 2013.
- ✓ Chairman and internal examiner of MSc examination committees, September 2013 - present.
- ✓ Editorial board membership invitation, International Journal of Industrial Engineering, Islamic Azad University, Iran, October 2012.
- ✓ **An elected officer and a foundation member of the Saudi Arabian Section of the Combustion Institute (SAS-CI), Saudi Aramco Company, Saudi Arabia, June 15, 2010.**
- ✓ Reviewer of Combustion and Flame Journal (Elsevier Editorial System).
- ✓ Reviewer of Fuel Journal (Elsevier Editorial System).
- ✓ Reviewer of Energy and Fuels journal (ACS Publications).
- ✓ Reviewer of the International Journal of Hydrogen Energy (Elsevier Editorial System).
- ✓ Reviewer of Environmental Science and Technology (ACS Publications).
- ✓ Reviewer of Computers and Fluids journal (Elsevier Editorial System).
- ✓ Reviewer of Applied Energy journal (Elsevier Editorial System).
- ✓ Reviewer of Journal of Hazardous Materials (Elsevier Editorial System).
- ✓ Reviewer of Journal of Energy Resources Technology – ASME Journals
- ✓ Reviewer of the Arabian Journal for Science and Engineering (AJSE), KFUPM, Saudi Arabia.
- ✓ Reviewer of the International Conference on Energy Research and Development (ICERDS).
- ✓ Reviewer of the Regional Conference on Vehicle Engineering & Technology (RiVET).

- ✓ Reviewer of the International Conference of scientific and engineering

## Memberships

- The Combustion Institute.
- Institute of Physics (IoP).
- American Institute of Aeronautics and Astronautics (AIAA)
- American Society of Mechanical Engineering (ASME)

## Personal Development

- ❖ **Founder of ClearExhaust LLC** as a startup of the patent “Smokeless Exhaust Tube”, November 2022.
- ❖ Promoted to a Full Professor Rank, April 2020.
- ❖ **Member of the Qatar UK Alumni Network - British Council Qatar, February 2014 – Present.**
- ❖ **Participating in the QSTP Accelerator program to develop the first prototype of the animation video games as a new teaching and learning method, Doha, Qatar, March – June 2015.**
- ❖ Promoted to Associate Professor Rank, March 2014.
- ❖ Participated in Intellectual Property seminar, Qatar University, March 2014.
- ❖ Participated in a training course on “Automotive Fuels and Combustion, Carbon Reduction Technologies and Fuel Dieselization” Cosmo Oil Company, Tokyo, Japan, January 22 -31, 2012.
- ❖ Participated in a training course on "CO<sub>2</sub> Capture Technologies" Delivered by prof. Pual Broutin from IFP-France, Al Koubar, Saudi Arabia, October 12 -14, 2010.
- ❖ Participated in a laser safety training courses, University of Cambridge, Cambridge, UK, August 2004 - January 2008.
- ❖ Participated in a risk assessment course for laboratories and laser facilities, Cambridge, UK. September 2003.
- ❖ Holding a qualification certificate in "English for Academic Purposes", University of Cambridge, Cambridge, UK, August-September 2003.
- ❖ Participated in the organization of the International Conference of Mechanical Power Engineering, University of Helwan, Cairo, Egypt, August 2000.
- ❖ Training at Pipeline Petroleum Company, Cairo, Egypt, August 1996.
- ❖ Training at Petroget Petroleum Company, Cairo, Egypt, July 1996.
- ❖ Training at Egypt Air Company, Cairo, Egypt, July-August 1995

## Collaborations

- MoU and Collaborative research work with Baker Hughes (BH) Company in Qatar to investigate the optimization of C3MR train in LNG industry.

- Collaboration research project on a combined experimental and numerical investigation of ignition probability of turbulent inhomogeneous biogas-air mixtures with Prof. Nilanjan Chakraborty, Newcastle University, UK, June 2017 – October 2019.
- Collaboration research project on spray combustion of renewable and GTL Fuels with Prof. Assaad Masri, University of Sydney, Australia, November 2014 – October 2017.
- Collaboration research project on experimental and computational investigations of the ignition and combustion of GTL and jet fuel blends with Dr. Reza Sheikhi and Dr. Hameed Metghalchi, Northeastern University, USA, November 2014 – October 2017.
- Collaboration research links with Oryx GTL and Sasol companies in Qatar, December 2013.
- Collaborative research work with General Electric (GE) Company in Qatar to investigate the combustion of natural gas derived blended fuels in gas turbines and internal combustion engines. September 2013 – August 2019.
- Collaborative research project on GTL fuel autoignition under ambient and diesel-like conditions with Prof. Tarek Echehki, North Carolina State University, USA. September 2013 – August 2016.
- Collaborative research work on spark ignition experiments with Dr. E. Mastorakos' group, University of Cambridge, UK. January 2008 – August 2011.
- Collaborative research project on carbon capture in an ITM reactor with Prof. Ahmed Ghoniem' group, Massachusetts Institute of Technology (MIT), Cambridge, USA, September 2008 – September 2013.
- Collaborative research work using high-speed diagnostics with Dr. Andreas Dreizler's group, Technische Universität Darmstadt, Germany, June-December 2007.
- Collaborative research project TIMECOP using Large Eddy Simulations (LES) with Prof. Luc Vervisch's group, CORIA, Rouen, France, January 2007-January 2009.

### Innovation Funded Project

- **Qatar Development Bank (QDB) in collaboration with SIEED office at Qatar University (QUEX-SIEED-22\_23-1)** for the startup ClearExhasut to develop smokeless exhaust tube for diesel engines. May 2022 – May 2024.  
Total fund: QR 250,000.
- **Qatar Innovation Promotion Award (QIPA 1-0701-14013)** to develop combustion-engine animation video games as an innovative teaching and learning method for engineering students, February 8, 2015, Doha, Qatar  
Total fund: \$100,000 provided by **Qatar Science and Technology Park (QSTP)** Accelerator program.

<b>Funded Research</b>			
Design of an Industrial Burner using Hydrogen as an Alternative Fuel. <b>UREP30-010-2-003 (Lead Principle Investigator).</b>	QRDI-UREP	12/23 – 12/24	\$17,806
Hydrogen Production, On-Board Carbon Capture and Reducing CO2 Footprint in shallow water investigation. QUEX-CENG-McDmt-23/24-1. <b>(Lead Principle Investigator).</b>	McDermott Company	06/23 – 06/26	\$20,000
Ignition and Combustion Characteristics of Natural Gas-Recycled Flare Gas Blended Fuels for High Efficiency and Low Emission Oil and Gas Industrial Furnaces. <b>IRCC –cycle 6. (Lead Principle Investigator).</b>	Qatar University- College of Technological Studies in Kuwait	01/23 – 12/24	\$160,000
Effect of Novel Intake Manifold Designs on Smoke Emissions and Particulate Size Distributions of a Gas-to-Liquid Diesel Engine. <b>QUST-1-CENG-2022-419. (Lead Principle Investigator).</b>	Qatar University	01/22 – 04/22	QR 14,000
Novel Selective Catalytic Reduction System (SCR) Utilized to Capture CO2 Emission in Diesel Engines. <b>QUST-1-CENG-2022-420. (Lead Principle Investigator).</b>	Qatar University	01/22 – 04/22	QR 7,000
Energy and environmental investigations of Natural Gas-Recycled Exhaust Gas Blended Fuels for Industrial Gas Turbines and Furnaces. <b>QUEX-CENG-QAFCO-20/21-2. (Lead Principle Investigator).</b>	QAFCO Company	03/21 – 03/22	QR 18,250
Development of a Transparent Air Compartment for the Air-Condition Test Rig to Investigate Droplet Transmissions. <b>QUST-1-CENG-2021-9. (Lead Principle Investigator).</b>	Qatar University	01/21- 4/21	QR 7,000
Measurements and Optical Engine Visualization of Turbulent Flame Speeds of	Qatar University	01/20- 4/20	QR 20,000



GTL Fuel Blends. **QUST-1-CENG-2020-25. (Lead Principle Investigator).**

Ignition delay Investigation of GTL fuel blends. <b>QUST-1-CENG-2020-26. (Lead Principle Investigator).</b>	Qatar University	01/20- 4/20	QR 20,000
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DEVELOPMENT OF A CO2 ABSORPTION CAPTURE TUBE FOR MOBILE EMISSION SOURCES. <b>QUST-1-CENG-2018-21. (Lead Principle Investigator).</b>	Qatar University	01/18-12/18	QR 20,000
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A combined experimental and numerical investigation of ignition probability of turbulent inhomogeneous biogas-air mixtures. <b>UK-Gulf Institutional Links 2016 grants No. 0000X149. (Lead Principle Investigator).</b>	British Council	06/17-10/19	£ 371,981
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Investigation of the Ignition Characteristics of Alternative Gaseous Fuel Mixtures and Testing Them on a Modified Truck Engine. <b>QUST-2-CENG-2017-9. (Lead Principle Investigator).</b>	Qatar University	06/17-12/17	QR 10,000
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Design and Test of a CO2-Capture Vehicle Exhaust Pipe. <b>QUST-CENG-SPR\2017-18. (Lead Principle Investigator).</b>	Qatar University	01/17-12/17	QR 10,000
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Development of Low-Pressure Supercharger Air Blower for Improving Engine Efficiency. <b>QUST-CENG-FALL-15/16-13 (Lead Principle Investigator).</b>	Qatar University	04/16-12/16	QR 8,000
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Studying the ignition characteristics of a swirled spray burner. <b>QUST-CENG-SPR-14/15-12 (Lead Principle Investigator).</b>	Qatar University	01/15 – 01/16	QR 10,000
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Improving the design of fuel injection system for low fuel consumption diesel engine. <b>QUST-CENG-FALL-14\15-5</b>	Qatar University	01/15 – 01/16	QR 10,000
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**(Lead Principle Investigator).**

Converting waste cooking oil to biofuel for diesel engines. <b>QUST-CENG-FALL-14\15-6 (Lead Principle Investigator).</b>	Qatar University	09/14 – 08/15	QR 10,000
Testing and Mentoring the Performance and Emissions of a Diesel Engine Fuelled with Oryx-GTL Diesel Fuel. <b>QUEX-CENG-MIE-14/15-01 (Lead Principle Investigator).</b>	Oryx GTL Company	09/14 – 09/15	QR 79,560
Development of local biofuels for better performance and emissions diesel engines <b>UREP 16 - 002 - 2 - 001 (Lead Principle Investigator).</b>	QNRF-UREP	09/14 – 09/15	\$60,000
Experimental and Computational Investigations of the Ignition and Combustion of GTL and Jet Fuel Blends. <b>NPRP 7 - 252 - 2 – 113 (Lead Principle Investigator)</b>	QNRF-NPRP	1/15 – 1/18	\$874,271.57
Spray Combustion of Renewable and GTL Fuels. <b>NPRP 7 - 036 - 2 – 018 (Lead Principle Investigator)</b>	QNRF-NPRP	1/15 – 1/18	\$877,774.73
Development of New Induction Manifold Designs for High-Efficiency Low-Emissions GTL Diesel Engines. <b>QUST-CENG-SPR-13/14-1 (Lead Principle Investigator).</b>	Qatar University	4/14 – 4/15	QR 10,000
Ignition Delay Investigation of Alternative Liquid Fuel Blends <b>UREP 15 - 023 - 2 – 004 (Lead Principle Investigator).</b>	QNRF-UREP	3/14 – 3/15	\$30,000
Improving the Design and Performance of a Carbon Capture Device for Mobile Systems <b>QUST-CENG-FALL-13/14-2 (Lead Principle Investigator).</b>	Qatar University	11/13-11/14	QR 10,000
Computational and Experimental Studies	QNRF-	10/13 – 10/16	\$955,824.63

of GTL Fuel Autoignition Under Ambient and Diesel-Like Conditions. <b>NPRP 6 - 105 - 2 - 039 (Lead Principle Investigator).</b>	NPRP		
Study of Combustion Characteristics of Natural Gas derived Blended Fuels for Application in Gas Turbines and Internal Combustion Engines. <b>NPRP 6 - 1327 - 2 - 533 (Principle Investigator).</b>	Q NRF- NPRP	1/14 – 1/17	\$934,524.9
Measurements of the ignition delay of GTL fuels. <b>QUST-CENGSPR-12/13-9 (Lead Principle Investigator).</b>	Qatar University	5/13 – 5/14	QR 10,000
Investigation of the Combustion Characteristics of GTL Fuels. <b>QUST-CENGFALL-12/13-11 (Lead Principle Investigator).</b>	Qatar University	11/12 – 11/13	QR 10,000
Design and Development of Test Bench for Measuring Laminar Flame Propagation Speed. <b>QUST-CENGFALL-12/13-17 (Lead Principle Investigator).</b>	Qatar University	11/12 – 11/13	QR 110,000
Turbulent and Laminar Burning Velocity Measurements of New Alternative Fuels. <b>UREP 12 - 021 - 2 - 006 (Lead Principle Investigator).</b>	Q NRF- UREP	07/12 – 06/13	\$30,000
Combustion characteristics and emissions of a diesel engine fueled with new alternative fuels. <b>QUSG-CENG-ENG-11/12-5 (Lead Principle Investigator).</b>	Qatar University	04/12 – 03/13	QR 50,000
Developing an air-water-oil multiphase flow meter with the presence of solid particles <b>Research Project (15-5-ط م) (Co-Investigator).</b>	KACST Saudi Arabia	01/11 – 01/14	SR 2,000,000
Combustion characteristics and emissions of a HCCI-DI diesel engine running with a bio-Fuel suitable for Saudi Arabian	KFUPM Saudi Arabia	09/10 – 02/14	SR 914,640

environment. **IN100033 (Principle Investigator).**

Carbon capture via oxyfuel combustion in an ion transport reactor. **09-ENE755-04 (Co-Investigator).** KACST-NSTIP 06/10 – 06/12 SR 1,869,000

Experimental and theoretical investigations of knock tendency and emissions of a spark ignition engine fueled with gasoline octane 91 and 95. **IP/2009-33 (Co-Investigator).** KFUPM 03/08 – 03/11 SR 500,000

Measurements of minimum ignition energy of laminar non-premixed flames. **JF090002 (Principle Investigator).** KFUPM 01/08 – 01/09 SR 50,000

Toward innovative methods for combustion prediction in aero-Engines (TIMECOP). **(Post Doctor).** EU 02/07 – 01/08 270,000 Euro

High altitude gas turbine relight. **(Research Assistant – PhD student)** Rolls-Royce plc. UK. 01/04 – 02/07 225,000 GBP

## Publications

### *Refereed Journal Papers*

1. R. Alajmi, M. Al-Shaghdari, A. Sadeq, S.F. Ahmed, A. Almutari, Numerical Investigation of Flare Gas Mixture Combustion in a Low-NO<sub>x</sub> Industrial Burner, *Energy Science & Engineering* (2024). [Submitted].
2. P.S. Yadav; J. Sharma; M. Hussain; I.A. Khan; K. Goyal; R. Gautam; **S.F. Ahmed**, A Novel Investigation on Single-loop Pulsating Heat Pipe Filling with Hybrid Nanofluids: Numerical and Experimental, *Results in Engineering* (2024). [Submitted].
3. R. Shady, **S.F. Ahmed**, A. K. Sleiti, Development of Systematic Knowledge-Based and Constrained Bayesian Optimization Approaches for Propane Pre-Cooled Mixed Refrigerant LNG Process, *Chemical Engineering Science* (2024). [Submitted].

4. H. M. Mohamed, A.M. Sadeq, A. K. Sleiti, **S.F. Ahmed**, Thermal Comfort Conditions of an Indoor Hot-Climate Swimming Pool, *Theoretical and Applied Climatology* (2024). [Submitted].
5. A.M. Elbashir, **S.F. Ahmed**, Measurements of Ignition Delay of Gas-to-Liquid (GTL) Fuel Blends, *Heliyon* (2024). [Submitted].
6. A.M. Sadeq, A.K. Sleiti, **S.F. Ahmed**, Experimental Study of Turbulent Premixed Flames of Gas-to-Liquids (GTL) Fuel in a Fan-Stirred Combustion Bomb, *Heliyon* (2024). [Submitted].
7. T. Al-Amoodi, M. Khalafalla, S.F. Ahmed, LPG-Diesel Dual Fuel Emission Characteristics: A Review, *Journal of Student Research* (2024). [Accepted].
8. P. Yadav, S.F. Ahmed, R. Gautam, H. CALISKAN, N. Caliskan, H. Hong, Nozzle Effects on Spray Combustion and Emissions in Compression Ignition Engines using Waste Cooking Oil Biodiesel: A Computational Fluid Dynamics Analysis at Varying Injection Pressures, *IET Renewable Power Generation* (2024). [Accepted].
9. A. M. Sadeq; A. H. Moghaddam; A. K. Sleiti; **S. F Ahmed**, Development of Machine Learning Models for Studying the Premixed Turbulent Combustion of Gas-To-Liquids (GTL) Fuel Blends, *Korean Journal of Chemical Engineering* (2024) 1-16.
10. S. Sayyed , R. K. Das, S. F. Ahmed, K. Kulkarni, T. Alam, S. M. Eldin, Modelling of Multiple Biodiesel-Emitted Nitrogen Oxides Using ANN Approach, *Alexandria Engineering Journal* 79 (2023) 116 - 125.
11. M.H. Elrentisy, Y.M. Abdellatif, A.M. Elbashir, **S.F. Ahmed**, Development of an Air-Cooled Induction Manifold for Diesel Engines in Hot and Humid Climate, *Journal of Energy Resources Technology* 144 (2022) - 072303-1
12. Y. Badri, A.M. Elbashir, A.T. Saker, **S.F. Ahmed**, An experimental and numerical investigation of the effects of the diaphragm pressure ratio and its position on a heated shock-tube performance, *Energy Science and Engineering* 10 (4), (2022) 1–12.
13. F. Mohamed, F. Eljack, **S.F. Ahmed**, S. Ghani, Investigating the Potential of Recycling Flare-Source Hydrocarbon Gases in an Industrial Burner, *Journal of Energy Resources Technology* 144 (2021) - 022309-1
14. A.M. Elbashir, A.T. Saker, **S.F. Ahmed**, Effect of Utilizing a Novel Intake Manifold Design on Smoke Emissions and Particulate Size Distributions of a Gas-to-Liquid (GTL) Diesel Engine, *Journal of Energy Resources Technology* 144 (2021) - 022301-1
15. A.M. Sadeq, **S.F. Ahmed**, A.K. Sleiti, Dataset for Transient 3D Simulations of Turbulent Premixed Flames of Gas-to-Liquid (GTL) Fuel, *Data in Brief*, 36 (2021) 106956.
16. A.K. Sleiti, W. Al-Ammari, **S.F. Ahmed**, J. Kapat, Direct-fired oxy-combustion supercritical-CO<sub>2</sub> power cycle with novel preheating configurations -Thermodynamic and Exergoeconomic analyses, *Energy*, 226 (2021) 120441.
17. Y.M. Abdellatif, A.T. Saker, A.M. Elbashir, **S.F. Ahmed**, Combustion and Emissions of a Gas-to-Liquid (GTL) Diesel Engine Utilizing Optimized

- Spiral-Helical Intake Manifold Designs, *Journal of Energy Resources Technology*, 143 (2021)- 062308-1
18. A.M. Sadeq, **S.F. Ahmed**, A.K. Sleiti, Transient 3D Simulations of Turbulent Premixed Flames of Gas-to-Liquid (GTL) Fuel in a Fan-Stirred Combustion Vessel, *Fuel*, 291 (2021) 120184.
  19. A.K. Sleiti, **S.F. Ahmed**, S. Ghani, Spreading of SARS-CoV-2 via heating, ventilation and air conditioning systems? An overview, energy perspective and potential solutions, *Journal of Energy Resources Technology* 143 (2021)- 080803-1.
  20. Khaled Abouemara, **S.F. Ahmed**, Emission Control Technologies in Spark Ignition Engines, *Journal of Student Research*, 9 (1), (2020) 1-35
  21. M.A. Bassiony, A.E. Ebrahemi, T.M. Syam and **S.F. Ahmed**, Investigating the effect of the Air Inlet Temperature on the Combustion Characteristics of a Spark Ignition Engine Fueled by Biogas, *Greenhouse Gases: Science and Technology.0: (2020) 1–12*.
  22. A.M. Sadeq, A.K. Sleiti, **S.F. Ahmed**, Turbulent Flames in Enclosed Combustion Chambers: Characteristics and Visualization - a Review, *Journal of Energy Resources Technology*, 142(8), (2020) 080801-1
  23. A.M. Sadeq, M.A. Bassiony, A.M. Elbashir, **S.F. Ahmed**, M. Khraisheh, Combustion and Emissions of a Diesel Engine Utilizing Novel Intake Manifold Designs and Running on Alternative Fuel, *Fuel* 255 (2019) Article 115769.
  24. C. Turquand d'Auzaya, V. Papapostoloua, **S.F. Ahmed**, N. Chakraborty, Effects of turbulence intensity and biogas composition on the localised forced ignition of turbulent mixing layers, *Combustion Science and Technology* 191 (2019) 868–897.
  25. C. Turquand d'Auzaya, V. Papapostoloua, **S.F. Ahmed**, N. Chakraborty, On the Minimum Ignition Energy and its transition in the localised forced ignition of turbulent homogeneous mixtures, *Combustion and Flame* 201 (2019) 104–117.
  26. M.A. Bassiony. A.M. Sadiq. M.T. Gergawy. **S.F. Ahmed**, S. Ghani, Investigating the Effect of Utilizing New Induction Manifold Designs on the Combustion Characteristics and Emissions of a DI Diesel Engine, *Journal of Energy Resources Technology*, 140(12), (2018) 122202-17.
  27. **S.F. Ahmed**, M. Atilhan, Evaluating the performance of a newly-developed carbon capture device for mobile emission sources, *Journal of Energy Resources Technology* 139(6), (2017) 062101-062101-8.
  28. T. Echekki and **S.F. Ahmed**, Turbulence effects on the autoignition of DME in a turbulent co-flowing jet, *Combustion and Flames* 178 (2017) 70–81.
  29. S. Samim, A. M. Sadeq, **S.F. Ahmed**, Measurements of Laminar Flame Speeds of GTL-Diesel Fuel Blends, *Journal of Energy Resources Technology* 138(5), (2016) 052213-8.
  30. **S.F. Ahmed**, E. Mastorakos, Spark ignition of a turbulent shear-less fuel-air mixing layer, *Fuel* 164 (2016) 297-304.
  31. T. Echekki and **S.F. Ahmed**, Autoignition of n-heptane in a turbulent co-flowing jet, *Combustion and Flames* 162 (2015) 3829–3846.

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33. **S.F. Ahmed**, The probabilistic nature of ignition in turbulent highly-strained lean premixed methane-air flames for low-emission engines, *Fuel* 134 (2014) 97-106.
34. **S.F. Ahmed**, Scalar dissipation rate statistics in turbulent flows using planar laser induced fluorescence measurements, *International Journal of Heat and Fluid Flow* 33 (2012) 220-231.
35. M.A. Habib, R.B. Mansor, H.M. Badr, **S.F. Ahmed**, A. Ghoniem, Computational fluid dynamic simulation of oxyfuel combustion in gas-fired water tube boilers, *Computers and Fluids* 56 (2012) 152-165.
36. M.A. Habib, H.M. Badr, **S.F. Ahmed**, R.B. Mansor, S. Imashuku, G.J. la O, Y. Shao-Horn, N. Mancini, A. Mitsos, P. Kirchen, A. Ghoneim, A review of recent developments in carbon capture utilizing oxy-fuel combustion in conventional and ion transport membrane systems, *International Journal of Energy Research* 35 (2011) 741-764.
37. **S.F. Ahmed**, E. Mastorakos, Correlation of spark ignition with the local instantaneous mixture fraction in a turbulent non-premixed methane jet, *Combustion Science and Technology* 182 (2010) 1-9.
38. C. Kittler, B. Böhm, **S.F. Ahmed**, R. Gordon, I. Boxx, W. Meier, E. Mastorakos, A. Dreizler, Statistics of relative and absolute velocities of turbulent non-premixed edge flames following spark ignition, *Proceedings of the Combustion Institute* 32 (2009) 2957-2964.
39. T. Marchione, **S.F. Ahmed**, E. Mastorakos, Ignition of turbulent swirling n-heptane spray flames using single and multiple sparks, *Combustion and Flame* 156 (2009) 166-180.
40. **S.F. Ahmed**, R. Balachandran, T. Marchione, E. Mastorakos, Spark ignition of turbulent non-premixed bluff-body flames, *Combustion and Flame* 151 (2007) 366-385.
41. **S.F. Ahmed**, R. Balachandran, E. Mastorakos, Measurements of the ignition probability in turbulent counter-flow flames, *Proceedings of the Combustion Institute* 31 (2007) 1507-1513.
42. **S.F. Ahmed**, E. Mastorakos, Spark ignition of turbulent lifted jet flames, *Combustion and Flame* 146 (2006) 215-231.
43. M.S. Radwan, I.G. El-Gizawy, S.M.S. Elfeky, **S.F. Ahmed**, Thermal loading and emissions of a diesel engine fueled by jojoba methyl ester, *Engineering Research Journal* 107 (2006) M1-M16.

## ***Refereed Conference Proceedings***

1. A.M. Elbashir, **S.F. Ahmed**, An Experimental Investigation of Ignition Delay of Gas-to-Liquid (GTL) Fuel Blends, *29th International Colloquium on the Dynamics of Explosions and Reactive Systems*, Seoul, South Korea, July 23-28, 2023.
2. A.E. Ebrahemi, **S.F. Ahmed**, A.K. Al-Ali, W.K. Labda, F. Tarlochan, Improving the Effectiveness of Lecturing Using Combined Classroom/Remote Learning Model: A Case Study of College of Engineering at Qatar University, *Education, Engineering Education and Instruction Technology Conference (EEEITC 21)*, Doha, Qatar, February 21-23, 2021.
3. I.N. Naser, A.M. Elbashir, A.T. Saker, **S.F. Ahmed**, Smoke Emissions and Particulate Size Characterizations of a Gas-to-Liquid (GTL) Diesel Engine Utilizing a Novel Spiral-Helical Manifold Design, *ASME 2021 POWER Conference*, July 20-22, 2021.
4. Y.M. Abdellatif, A.T. Saker, A.M. Elbashir, **S.F. Ahmed**, Optimized Intake Manifold Designs and Their Effects on the Operation and Emissions of a Gas-to-Liquid Diesel Engine, *28th International Conference on Nuclear Engineering Joint with the ASME 2020 Power Conference*, California, USA, August 2-6, 2020
5. M.A. Bassiony, A.E. Ebrahemi, C. Turquand d'Auzay, **S.F. Ahmed**, N. Chakraborty, An Experimental Study of Spark Ignition of a Turbulent Biogas Fuel Jet, *27th International Colloquium on the Dynamics of Explosions and Reactive Systems*, Beijing, China, 28 July –2 August, 2019.
6. C. Turquand d'Auzay, **S.F. Ahmed**, N. Chakraborty, Ignition kernel development and subsequent flame propagation in a planar methane/air turbulent jet, *27th International Colloquium on the Dynamics of Explosions and Reactive Systems*, Beijing, China, 28 July –2 August, 2019.
7. C. Turquand d'Auzay, V. Papapostolou, **S.F. Ahmed**, N. Chakraborty, Effects of Biogas Composition on the Edge Flame Propagation in Igniting Turbulent Mixing Layers, *11th Mediterranean Combustion Symposium*, Tenerife, Spain, 16-20 June 2019.
8. A.M. Sadeq, M.A. Bassiony, **S.F. Ahmed**, Combustion Characteristics and Emissions of a DI Diesel Engine Utilizing Novel Intake Manifold Designs and Running on GTL Fuel Blends, *11th Mediterranean Combustion Symposium*, Tenerife, Spain, 16-20 June 2019.
9. V. Papapostolou, C. Turquand d'Auzay, **S.F. Ahmed**, N. Chakraborty, Effects of fuel composition on the minimum ignition energy and its transition for homogeneous biogas-air mixtures, *9th European Combustion Meeting*, Lisboa, Portugal, April 14-17, 2019.
10. C. Turquand d'Auzay, **S.F. Ahmed**, N. Chakraborty, Ignition and Early Stages of Flame Propagation in a Non-Premixed Biogas Planar Turbulent Jet, *9th European Combustion Meeting*, Lisboa, Portugal, April 14-17, 2019.
11. C. Turquand d'Auzay, V. Papapostolou, **S.F. Ahmed**, N. Chakraborty, Transition in the Minimum Ignition Energy for the Localized Forced Ignition



- of Turbulent Homogenous Mixtures, *12th International ERCOFTAC symposium on engineering, turbulence, modelling and measurements*, Montpellier, France, September 26-28, 2018.
12. S. Samim, **S.F. Ahmed**, Measurements of Laminar Flame Speeds of Alternative Liquid Fuel Blends, *26th International Colloquium on the Dynamics of Explosions and Reactive Systems*, Boston University, Boston, USA, 30 July – 4 August 2017.
  13. S. Samim, **S.F. Ahmed**, Experimental Investigation of the Laminar Flame Speeds of GTL Fuel Blends, *52<sup>nd</sup> AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit*, Salt Lake City, Utah, USA, 25 - 27 July 2016. Paper No. AIAA-2016-4956.
  14. A. Sadeq, M. Elgergawi, M. Bassiony, **S.F. Ahmed**, Combustion Characteristics and Emissions of a Direct-Injection Diesel Engine Fueled with GTL fuel blends, *Qatar Foundation Annual Research Forum Proceedings*, Doha, Qatar, 22-23 March 2016.
  15. A.S. Ibrahim, **S.F. Ahmed**, Studying the Effect of H<sub>2</sub>, O<sub>2</sub> and CO<sub>2</sub>/N<sub>2</sub> Addition on the Laminar Flame Speed of CH<sub>4</sub>/LPG-Air Mixtures, *25th International Colloquium on the Dynamics of Explosions and Reactive Systems*, Leeds, UK, 2 – 7 August 2015.
  16. A. Sadeq, M. Elgergawi, M. Bassiony, **S.F. Ahmed**, New Induction Manifold Designs for High Performance and Low Emission Diesel Engine Running on Alternative Fuels, *51<sup>st</sup> AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit*, Orlando, FL, USA, 27-29 July 2015. Paper No. AIAA-2015-4017.
  17. A.S. Ibrahim, M. A. Abdalwahab, O. S. Abulaban, **S.F. Ahmed**, Investigation of Laminar Flame Speeds of Methane-LPG Air Mixtures, *Proceedings of the 4th International Gas Processing Symposium*, Doha, Qatar, 26–27 October, 2014.
  18. A.S. Ibrahim, M. A. Abdalwahab, O. S. Abulaban, **S.F. Ahmed**, Measurements of laminar flame speeds of alternative gaseous fuel mixtures, *50<sup>th</sup> AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit*, Ohio, USA, 28-30 Jul 2014. Paper No. AIAA-2014-3980.
  19. I. Naser, S. Ali, **S.F. Ahmed**, Development of a carbon capture device for mobile emissions sources, *2nd International Conference on Mechanical, Automotive and Aerospace Engineering (ICMAAE 2013)*, Kuala Lumpur, Malaysia, 2-4 July 2013.
  20. I. Naser, S. Ali, **S.F. Ahmed**, Design and fabrication of a device for carbone capture in mobile emission sources, *Qatar Foundation Annual Research Forum Proceedings*, Doha, Qatar, 21-23 October 2012.
  21. **S.F. Ahmed**, Gas-Face Metal Temperatures and Emissions of IDI Diesel Engine Running on a Bio-Fuel Extracted from Jojoba Oil, the Global Conference on Global Warming, Istanbul, Turkey, July 8-12, 2012
  22. **S.F. Ahmed**, E. Mastorakos, Ignition probability of lean premixed bluff-body flames, *23<sup>rd</sup> International Curriculum in Dynamics of Explosion and Reactive Systems*, Irvine CA, USA, 24-29 July 2011.
  23. **S.F. Ahmed**, I.A. Bahena Ledezma and E. Mastorakos, Spark ignition in a turbulent shearless fuel-air mixing layer: average flame growth rates, *47th*

*AIAA Aerospace Sciences Meeting*, Orlando FL, USA, 5-8 January 2009. Paper No. AIAA-2009-0238.

24. R. Gordon, C. Heeger, B. Böhm, **S.F. Ahmed**, I. Boxx, E. Mastorakos, W. Meier, A. Dreizler, Laser Diagnostics for Transient Combustion Phenomena, *Ninth International Workshop on Measurements and Computational of Turbulent Nonpremixed Flames*, Montreal, Canada, July 31- August 2, 2008.
25. C. Kittler, B. Böhm , I. Boxx , W. Meier , **S.F. Ahmed** , E. Mastorakos, A. Dreizler, Multidimensional laser diagnostics at high repetition rates: acquisition and analysis of transient combustion processes, *ASME Turbo Expo*, Berlin, Germany, 9-13 June 2008.
26. T. Marchione, **S.F. Ahmed**, E. Mastorakos, Ignition behavior of recirculating spray flames using multiple sparks, *Fifth International Mediterranean Combustion Symposium*, Monastir, Tunisia, 9-13 September 2007.
27. T. Marchione, **S.F. Ahmed**, R. Balachandran, E. Mastorakos, Effectiveness of localized spark ignition in recirculating n-heptane spray flames, *21<sup>st</sup> International Curriculum in Dynamics of Explosion and Reactive Systems*, Poitiers, France, 23-27 July 2007.
28. **S.F. Ahmed**, T. Marchione, E. Mastorakos, Experimental investigation of ignition in turbulent non-Premixed bluff-body flames, *43<sup>rd</sup> AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit*, Cincinnati, USA, 9-11 July 2007.
29. **S.F. Ahmed**, R. Balachandran, Y.-Y. He, E. Mastorakos, Spark ignition of turbulent premixed and non-premixed opposed jet flames. *42<sup>nd</sup> AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit*, California, USA, 10-12 July 2006.
30. **S.F. Ahmed**, E. Mastorakos, Measurements of the probability of ignition and subsequent flame propagation speed in turbulent non-premixed jets, *20<sup>th</sup> International Curriculum in Dynamics of Explosion and Reactive Systems*, Montreal, Canada, 31 July – 5 August 2005.

### **Book chapters**

1. A.S. Ibrahim, M. A. Abdalwahab, O. S. Abulaban, **S.F. Ahmed**, Investigation of Laminar Flame Speeds of Methane-LPG Air Mixtures, in *Proceedings of the 4th International Gas Processing Symposium (Advances in Gas Processing)*, Elsevier, Volume 4(1) (2015) 125-131. (ISBN-10: 0444634614)

<b>Innovation and Product Development</b>		
Year	Patent (Product/Software)	Filled/Granted
2016	Course Animation Video Games	Filled
2017	Design and Test of a Carbon Capture Tube for Vehicles	Filled
2022	Smokeless Exhaust Tube	U.S. Patent No. 11,459,923 - October 4, 2022. (Granted)

2024	Portable Carbon Capture System	U.S. provisional patent application No. 63/549,206 – February 2, 2024
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## Presentations

1. A.M. Elbashir, **S.F. Ahmed**, Shock Tube Characterization for Ignition Delay Measurements, The Annual Research Forum and Exhibition 2023, Doha, Qatar, November 14-15, 2023. **(POSTER)**
2. **S.F. Ahmed**, The Potential of Recycling Flare-Source Hydrocarbon Gases in Industrial Furnaces, 17<sup>th</sup> Qatargas Engineering Forum, Doha, Qatar, December 15, 2021. **(TALK)**
3. A.E. Ebrahemi, M.A. Bassiony, **S.F. Ahmed**, Engineering Course Animation Video Games: An Innovative Teaching & Learning Method, *Education, Engineering Education and Instruction Technology Conference (EEEITC 21)*, Doha, Qatar, February 21-23, 2021. **(POSTER)**
4. A.E. Ebrahemi, **S.F. Ahmed**, An Experimental and Numerical Investigation of Spark Ignition of a Turbulent Biogas Jet, 12<sup>th</sup> International Exergy, Energy, and Environment Symposium, Doha, Qatar, March 22-26, 2020. **(POSTER)**
5. M.A. Bassiony, A.E. Ebrahemi, **S.F. Ahmed**, A Numerical investigation of Combustion Characteristics of Biogas Fuel in a Spark Ignition Engine, *27<sup>th</sup> International Colloquium on the Dynamics of Explosions and Reactive Systems*, Beijing, China, 28 July –2 August, 2019. **(POSTER)**
6. M.A. Bassiony, A.E. Ebrahemi, **S.F. Ahmed**, Investigating the effect of the air inlet temperature on the combustion characteristics of a spark ignition engine fueled by Biogas, 8<sup>th</sup> Global Conference on Global Warming, Doha, Qatar, April 22-25, 2019. **(POSTER)**
7. A.E. Ebrahemi, M.A. Bassiony, C. Auzay, **S.F. Ahmed**, N. Chakraborty, An Experimental and Numerical Investigation of Spark Ignition of a Turbulent Biogas Jet, *37<sup>th</sup> International Symposium on Combustion*, Dublin, Ireland, 29<sup>th</sup> July - 3<sup>rd</sup> August 2018. **(POSTER)**
8. **S.F. Ahmed**, the Red Arrows Panel Discussion “A day in the life of an elite engineer”, The British Council, Doha, Qatar, 1 October 2017. **(PANELIST)**
9. A.M. Sadiq, M.T. Gergawy, M.A. Bassiony and **S.F. Ahmed**, New Induction Manifold Designs for High Performance and Low Emission Diesel Engine Running on Alternative Fuels, *36<sup>th</sup> International Symposium on Combustion*, Seoul, South Korea, 31 July- 5 August 2016. **(POSTER)**
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11. I. Naser, S. Ali, **S.F. Ahmed**, Development of a Carbon Capture Device for Mobile Emissions Sources, *2<sup>nd</sup> International Conference on Mechanical, Automotive and Aerospace Engineering (ICMAAE 2013)*, Kuala Lumpur, Malaysia, 2-4 July 2013. **(TALK)**

12. **S.F. Ahmed**, Combustion characteristics and emissions of diesel engines running on GTL fuel, *United Nations Climate Change Conference, COP18. CMP8*, Doha, Qatar, Nov. 27- Dec. 6, 2012. (**TALK, Invited Speaker**)
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14. **S.F. Ahmed**, E. Mastorakos, Ignition probability of lean premixed bluff-body flames, *23<sup>rd</sup> International Curriculum in Dynamics of Explosion and Reactive Systems*, Irvine CA, USA, July 2011. (**TALK**)
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20. T. Marchione, **S.F. Ahmed**, E. Mastorakos, Ignition behavior of recirculating spray flames using multiple sparks, *Fifth Mediterranean Combustion Symposium*, Monastir, Tunisia, September 2007. (**TALK**)
21. **S.F. Ahmed**, R. Balachandran and E. Mastorakos, Measurements of the ignition probability of turbulent counter-flow flames, *31<sup>st</sup> International Symposium on Combustion*, Heidelberg, Germany, August 2006. (**TALK**)

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23. **S.F. Ahmed** and E. Mastorakos, Spark ignition of turbulent non-premixed flames, *University Gas Turbine Partnership Meeting*, Cambridge, UK, June 2006 **(TALK)**.
24. **S.F. Ahmed**, R. Balachandran and E. Mastorakos, Experimental investigation of flame propagation following spark ignition in turbulent jets, *Institute of Physics*, Loughborough, UK, September 2005. **(POSTER)**
25. **S.F. Ahmed** and E. Mastorakos, Measurements of the probability of ignition and subsequent flame propagation speed in turbulent non-premixed jets, *20<sup>th</sup> International Curriculum in Dynamics of Explosion and Reactive Systems*, Montreal, Canada, August 2005. **(TALK)**
26. **S.F. Ahmed**, Thermal loading and emissions of indirect injection diesel engine fueled by jojoba methyl ester. *Master viva*, *University of Helwan*, Cairo, Egypt, October 2002. **(TALK)**

#### Other Interests

##### *Sports*

- Swimming
- Athletics
- Tense and Tense table
- Chess

##### *Literature*

Poetry, Short stories and Drama

#### Referees

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