

# Shikha Ebrahim

Associate Professor

Mechanical Engineering Department, Kuwait University

Al-Shadadiyah – Kuwait

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🌐 scholar.google.com/citations?user=vluH2OsAAAAJ

in shikha-a-s-ebrahim-33b080115



## Education

**The Pennsylvania State University**

*Ph.D., Mechanical Engineering*

**University Park, PA, USA**

2014–2018

**The Pennsylvania State University**

*M.S., Mechanical Engineering*

**University Park, PA, USA**

2014–2017

**Kuwait University**

*M.S., Mechanical Engineering*

**Al-Shadadiyah, Kuwait**

2011–2014

**Kuwait University**

*B.S., Mechanical Engineering*

**Al-Shadadiyah, Kuwait**

2005–2010

## Doctorate Dissertation

**Title:** *An Experimental Investigation of the Effects of Surface Conditions on Pool-Boiling Heat Transfer for Various Materials*

**Supervisor:** Prof. Fan-Bill Cheung

## Masters Thesis

**Title:** *Performance evaluation of radiant barrier system in buildings*

**Supervisor:** Dr. Adel Alshayji

## Experience

**Kuwait University**

*Associate Professor*

**Al-Shadadiyah, Kuwait**

2024

**Kuwait University**

*Assistant Professor*

**Al-Shadadiyah, Kuwait**

2018

**Kuwait Oil Company (KOC)**

*Contractor Engineer*

**Ahmadi, Kuwait**

2014

**Kuwait Institute for Scientific Research (KISR)**

*Research Associate*

**Shuwaikh, Kuwait**

2013–2014

- Project leader in a project I had initiated, related to the moisture effects on the thermal performance of insulation in walls: *Prediction of moisture condensation in building envelope*
- Project leader of a project initiated by me and related to indoor air quality and thermal comfort: *Assessment of indoor air quality and thermal comfort in an office building*

**Kuwait Institute for Scientific Research (KISR)****Shuwaikh, Kuwait***Research Assistant**2010–2013*

- Member in a funded project by Ministry of Electricity and Water (MEW): *Development of a Strategy for the Exploitation of Renewable Energy Resources for the State of Kuwait*
- Member in project funded by KISR related to desalination plants in Kuwait: *Assessment of Multi-Stage Flash Desalination Plants*
- Member in a project funded by KISR concerns about renewable energy in Kuwait: *Promoting Energy Efficiency in Kuwait Buildings*
- Member in KISR funded related to energy conservation in building: *Effect of enhancing air-conditioning efficiency on power and energy for the state of Kuwait*
- Team member in a project funded by Kuwait Petroleum Company (KPC) related to LEED certification of an existing building: *Green Building Certification for the Oil Sector Complex*
- A partner in a project related to wind energy: *Evaluation of wind energy potential for electricity production at Al-Wafra, Al-Taweel and Umm-Omara areas in Kuwait*

**Teaching Experience****Kuwait University****Khaldiya, Kuwait***Lecturer**Fall 2010/2011, Spring 2010/2011, Spring 2011/2012, Fall 2012/2013, Spring 2012/2013, Summer 2012/2013*

- EES Tutorial Session

**Kuwait University****Khaldiya, Kuwait***Seminar Teacher, Kuwait**2012,2011*

- Future of Mechanical Engineers

**Kuwait Institute for Scientific Research (KISR)****Shuwaikh, Kuwait***Course Teacher, Kuwait**2012*

- Summer Student Training course in Solar and Thermal energy

**Kuwait University****Khaldiya, Kuwait***Seminar Teacher**2011*

- Introduction to SigmaPlot

**Kuwait Institute for Scientific Research (KISR)****Shuwaikh, Kuwait***Course Teacher, Kuwait**2011*

- Summer Student Training course in Energy Audit and Management course

**Journal Publications**

[1] H. H. Alfaiakawi, S. A. Ebrahim, and N. F. Aljuwayhel, "Experimental investigation of heat transfer enhancement during quenching using carbon-based nanofluids," *Annals of Nuclear Energy*, vol. 230, p. 112174, 2026.

[2] H. Alshehemah, S. A. Ebrahim, S. Mukherjee, B. T. Balakrishnan, and A. M. Bahman, "Rheological behavior and stability of mono and hybrid carbon nanotube/titanium dioxide nanofluids in ethylene glycol and water basefluids," *Journal of Molecular Liquids*, p. 129402, 2026.

[3] Z. Asous, S. Ebrahim, and W. Chakroun, "Investigation of flexible power plants with pressurized water reactor: Thermodynamic and energy transfer analyses," *Energy Conversion and Management: X*, p. 101475, 2025.

[4] N. Ali, N. F. Aljuwayhel, L. Al-Hajji, S. A. Ebrahim, A. Al-Zanki, M. Banyan, and M. Alenezi, "Solar-thermal desalination system performance enhancement using recycled aluminium beverage cans-based particles," *Results in Engineering*, p. 107812, 2025.

[5] S. A. Ebrahim, S. Mukherjee, N. F. Aljuwayhel, N. Ali, and A. M. Bahman, "Enhancing boiling heat transfer efficiency: A study of rod geometries and tank volumes," *Journal of Engineering Research*, 2025.

- [6] N. Ali, H. Bahzad, N. F. Aljuwayhel, and S. A. Ebrahim, "Techno-economic assessment of effervescent tablet-based nanofluids," *PloS one*, vol. 20, p. 0319265, 2025.
- [7] H. Althalab, N. Ali, S. A. Ebrahim, and A. M. Bahman, "Air conditioning compressor lubricant enhancement using carbon-based nanomaterials for hot climates," *Renewable and Sustainable Energy Reviews*, vol. 217, p. 115672, 2025.
- [8] N. Ali, H. Bahzad, N. F. Aljuwayhel, S. A. Ebrahim, A. T. Hamoud, H. Al-Mazidi, H. B. Al-Naser, M. A. Al-Attar, S. Kholosy, A. Al-Zanki, *et al.*, "A trihybrid approach for enhancing crude oil recovery using effervescent-tablet-based nanofluids," *Global Challenges*, p. 2400202, 2024.
- [9] S. Mukherjee, S. Ebrahim, P. C. Mishra, P. Chaudhuri, and N. Ali, "Enhancing heat transfer and minimizing entropy generation with mono and hybrid nanofluids: An experimental study," *Applied Thermal Engineering*, p. 124417, 2024.
- [10] S. Mukherjee, S. Wciślik, S. Ebrahim, P. C. Mishra, and N. Ali, "Enhancing cooling performance of a heat exchanger driven by water/alumina-silica hybrid nanofluid: experimental results," *Journal of Enhanced Heat Transfer*, vol. 31, no. 2, 2024.
- [11] N. Ali, H. Bahzad, N. F. Aljuwayhel, S. A. Ebrahim, and A. T. Hamoud, "Effervescent tablets for carbon-based nanofluids production," *Journal of Molecular Liquids*, vol. 390, p. 123083, 2023.
- [12] S. A. Ebrahim, E. Pradeep, S. Mukherjee, and N. Ali, "Rheological behavior of dilute graphene-water nanofluids using various surfactants: An experimental evaluation," *Journal of Molecular Liquids*, p. 120987, 2022.
- [13] N. F. Aljuwayhel, N. Ali, S. A. Ebrahim, and A. M. Bahman, "Experimental investigation of thermophysical properties, tribological properties and dispersion stability of nanodiamond-based nanolubricant for air conditioning systems," *International Journal of Refrigeration*, vol. 145, pp. 325–337, 2023.
- [14] S. Mukherjee, P. Mishra, N. Ali, N. Aljuwayhel, S. Ebrahim, and P. Chaudhuri, "Thermo-physical properties and heat transfer potential of novel silica-ethylene glycol mono nanofluid: Experiments and multi-layer perceptron (mlp) modelling," *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, vol. 648, p. 129412, 2022.
- [15] S. A. Ebrahim, F.-B. Cheung, S. M. Bajorek, K. Tien, and C. L. Hoxie, "Heat transfer correlation for film boiling during quenching of micro-structured surfaces," *Nuclear Engineering and Design*, vol. 398, p. 111943, 2022.
- [16] S. Ebrahim, E. Pradeep, and M. Ahmed, "Role of sea salt deposition on the advances in pool boiling heat transfer in nuclear reactors," *Applied Thermal Engineering*, p. 19146, 2022.
- [17] S. A. Ebrahim and E. Pradeep, "Rapid cooling performance of zirconium rods quenched in natural seawater," *Physics of Fluids*, vol. 34, pp. 1–11, 2022.
- [18] M. H. Almadhih, T. Almudhhi, S. Ebrahim, A. Howell, G. Garrett, S. Bajorek, and F. Cheung, "Acoustic analysis of the effects of vapor-liquid interfacial morphology on pool-boiling heat transfer," *Nuclear Technology*, pp. 1–11, 2022.
- [19] S. Mukherjee, S. Ebrahim, P. C. Mishra, N. Ali, and P. Chaudhuri, "A review on pool and flow boiling enhancement using nanofluids: Nuclear reactor application," *Processes*, vol. 10, no. 1, p. 177, 2022.
- [20] S. Mukherjee, P. Mishra, P. Chaudhuri, N. Alsayegh, and S. Ebrahim, "Nucleate pool boiling performance of water/titania nanofluid: experiments and prediction modeling," *Physics of Fluids*, November 2021.

- [21] S. A. Ebrahim, A. M. Bahman, K. Almutairi, and M. A. Alalaimi, "Experimental study on enhanced heat transfer during rapid cooling of modified and oxidized rods," *Annals of Nuclear Energy*, p. 108806, 2021.
- [22] N. Ali, A. M. Bahman, N. F. Aljuwayhel, S. A. Ebrahim, S. Mukherjee, and A. Alsayegh, "Carbon-based nanofluids and their advances towards heat transfer applications - a review," *Nanomaterials*, vol. 11, p. 1628, June 2021.
- [23] S. A. Alotaibi, S. Ebrahim, and A. Salman, "Prediction the minimum film boiling temperature of quenching vertical rods in water using random forest machine learning algorithm," *Frontiers in Energy Research*, vol. 9, p. 169, 2021.
- [24] A. Bahman and S. A. Ebrahim, "Prediction of the minimum film boiling temperature using artificial neural network," *International Journal of Heat and Mass Transfer*, April 2020.
- [25] A. Alshayji and S. A. Ebrahim, "Numerical simulation of heat transfer process in inclined roofs with radiant barrier system," *Journal of Engineering Research*, March 2020.
- [26] S. A. Ebrahim, E. Alat, F. A. Sohag, V. Fudurich, S. Chang, F.-B. Cheung, S. M. Bajorek, K. Tien, and C. L. Hoxie, "Effects of substrate materials and surface conditions on the minimum film-boiling temperature," *Nuclear Technology*, June 2018.
- [27] S. A. Ebrahim, S. Chang, F.-B. Cheung, and S. M. Bajorek, "Parametric investigation of film boiling heat transfer on the quenching of vertical rods in water pool," *Applied Thermal Engineering*, vol. 140, pp. 139 – 146, 2018.
- [28] A. Hajiah, M. Sebzali, and S. Ebrahim, "Analysis of wind power potential characteristics and feasibility in kuwait for possible electricity production," *International Journal of Renewable Energy Research*, vol. 3, no. 4, pp. 812 – 818, 2013.

## US Patents

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- [1] N. Alsayegh, F. M. Safar, and S. A. Ebrahim, "Fluid dispensing unit and collection unit for system of observing soil samples," 2025. US Patent 12,429,402.
- [2] N. Alsayegh, F. M. Safar, and S. A. Ebrahim, "System and methods for observing soil samples," 2025. US Patent 12,360,018.
- [3] N. Alsayegh, F. M. Safar, and S. A. Ebrahim, "Sample tube for system of observing soil samples," 2025. US Patent 12,326,384.
- [4] N. Alsayegh, F. M. Safar, and S. A. Ebrahim, "Soil layer extractor tool for system of observing soil samples," 2025. US Patent 12,281,969.
- [5] N. Alsayegh, S. Ebrahim, and A. Alsayegh, "System for making suspensions," 2024. US Patent No. 566,631.
- [6] N. Alsayegh and S. Ebrahim, "Method for determining physical stability of suspensions," 2025. US Patent 12,241,821.

## Conference Publications

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- [1] Y. Alweqayyan and S. Ebrahim, "Investigation of hexagonal boron nitride-based nanofluids with varying particle sizes," in *11th Thermal and Fluids Engineering Conference (TFEC), ASTFE Digital Library*, Begel House Inc., March, 2026.
- [2] S. Ebrahim and H. Alshehemah, "Advancements in transient pool boiling heat transfer during rapid cooling of an alternate accident-tolerant fuel cladding material," *Proceedings of the 11th World*

Congress on Mechanical, Chemical, and Material Engineering (MCM'25), Paris, France, August, 2025.

[3] H. Alshehemah, S. Ebrahim, S. Mukherjee, B. T. Balakrishnan, and A. M. Bahman, "Experimental analysis of stability and viscosity of tio 2 and mwcnt nanofluids with eg and water basefluids," in *ASTFE Digital Library*, Begel House Inc., 2025.

[4] H. Althalab, N. Ali, S. A. Ebrahim, and A. Bahman, "Air conditioning compressor oil enhancement using carbon-based nanolubricants," in *27th International Compressor Engineering Conference*, Purdue University, 2024.

[5] H. Althalab, A. Kumar, S. A. Ebrahim, and A. Bahman, "Modeling and sizing a compressor test stand for nanolubricant measurnments," in *Eighth International Conference on Energy Research and Development*, ASHRAE, Kuwait University, Kuwait, 2023.

[6] H. Alfailakawi, S. A. Ebrahim, N. Aljuwaihel, and E. Pradeep, "Experimental investigation on the effects of using carbon-based nanofluids on the heat transfer enhancement in pool boiling," in *Eighth International Conference on Energy Research and Development*, ASHRAE, Kuwait University, Kuwait, 2023.

[7] L. Alhassan, S. A. Ebrahim, S. Mukherjee, N. Ali, and E. Pradeep, "An experimental investigation on the effect of adding nanoparticles to seawater in rapid cooling system," in *ASTFE Digital Library*, Begel House Inc., 2023.

[8] N. Ali, H. Bahzad, A. Alsayegh, S. Mukherjee, S. A. Ebrahim, and N. F. Aljuwayhel, "Cpu thermal management: Investigation of fins arrangements and hybrid water-phase change materials cooling," in *2022 International Conference on Computing, Electronics & Communications Engineering (iCCECE)*, pp. 59–64, IEEE, 2022.

[9] S. A. Ebrahim, F. B. Cheung, S. M. Bajorek, K. Tien, and C. L. Hoxie, "Heat transfer correlation for film boiling during quenching of micro-structured surfaces," (Abu Dhabi, UAE), International Congress on Advances in Nuclear Power Plants (ICAPP 2021), 10 2021.

[10] E. Pradeep, S. A. Ebrahim, M. H. Alshehima, N. Ali, M. S. Solaiman, and I. E. Daffallah, "The effect of graphene-based nanofluids on transient pool boiling heat transfer," (Abu Dhabi, UAE), International Congress on Advances in Nuclear Power Plants (ICAPP 2021), 10 2021.

[11] M. H. Almadih, T. Almudhhi, S. A. Ebrahim, G. R. Garrett, S. M. Bajorek, and F. B. Cheung, "Acoustic analysis of the effects of vapor-liquid interfacial morphology on pool-boiling heat transfer," (Palaiseau, France), International Topical Meeting on Advances in Thermal Hydraulics (ATH'2020), 10 2020.

[12] S. Ebrahim, A. Bahman, and S. Alotaibi, "Prediction of the minimum film boiling temperature of vertical quenched rods in distilled water using an artificial neural network," (Kuwait City, Kuwait), Seventh International Conference on Energy Research and Development (ICERD-7), 11 2019.

[13] M. Alolaimi, S. Ebrahim, A. Bahman, M. Alalaimi, M. Alyaseen, and W. Chakroun, "Effect of surface roughness on heat transfer with phase change pool boiling for quenched vertical cylinders," (Kuwait City, Kuwait), Seventh International Conference on Energy Research and Development (ICERD-7), 11 2019.

[14] S. A. Ebrahim, N. Virani, S. Chang, and F.-B. Cheung, "Investigation of interfacial waves behavior during quenching of a vertical rod using an image processing technique," (Charlotte, NC), 2018 International Congress on Advances in Nuclear Power Plants (ICAPP 18), 4 2018.

- [15] T. K. Almudhhi, S. A. Ebrahim, and F.-B. Cheung, "Experimental study of heat transfer during quenching of a heated rod," (Fort Lauderdale, FL), Proceedings of the 3rd Thermal and Fluid Engineering Conference (TFEC), 3 2018.
- [16] S. A. Ebrahim, F.-B. Cheung, and A. Alshayji, "Numerical simulation of pool film boiling heat transfer during quenching of heated cylindrical rods," in *Proceedings of the 2017 COMSOL Conference*, (Boston), COMSOL, 10 2017.
- [17] S. A. Ebrahim, E. Alat, F. A. Sohag, V. Fudurich, S. Chang, F.-B. Cheung, S. M. Bajorek, K. Tien, and C. L. Hoxie, "An experimental investigation of the effects of surface conditions on pool-boiling heat transfer for various materials," in *17th International Topical Meeting on Nuclear Reactor Thermal Hydraulics*, (Xi'an, China), 11 2017.
- [18] S. A. Ebrahim, V. Fudurich, F. R. Beck, F.-B. Cheung, S. M. Bajorek, K. Tien, and C. L. Hoxie, "Effects of liquid subcooling and initial rod temperature on the minimum film boiling temperature," (New Orleans, LA), International Topical Meeting on Advances in Thermal Hydraulics, 6 2016.
- [19] S. A. Ebrahim, "Prediction of moisture condensation in building envelope," (Kuwait), Kuwait Insulation Conference & Exhibition, 2013.
- [20] S. A. Ebrahim and A. Alshayji, "Reducing solar heat gain from inclined buildings roof by using radiant barrier system," in *Proceedings of the 2013 COMSOL Conference*, (Rotterdam, Netherlands), COMSOL, 10 2013.

## Technical Reports

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- [1] F. B. Cheung, F. R. Beck, F. R. Ebrahim, M. K. Hanson, M. K. Jin, S. Kim, H. T. Kumru, B. R. Lowery, D. J. Miller, L. Mohanta, S. Qiao, A. Rau, M. P. Riley, and F. A. Sohag, "RBHT reflood heat transfer experiments data evaluation," tech. rep., The Pennsylvania State University, December 2017. for U.S. Nuclear Regulatory Commission.
- [2] S. Ebrahim, V. Fudurich, and F.-B. Cheung, "Determination of the minimum film boiling temperature for nuclear fuel rods with different types of fouling layers," tech. rep., The Pennsylvania State University, January 2017. the work performed at the Pennsylvania State University was supported by the U.S. Nuclear Regulatory Commission under Contract # NRC-HQ-60-14-G-0017.
- [3] S. Ebrahim, "Investigate the quality of their applied insulation in two sample walls provided by the company," tech. rep., Kuwait Institute for Scientific Research (KISR), 2013. for ISOFOAM Insulating Materials Plants W.L.L.
- [4] S. Ebrahim, "Assessment of indoor air quality and thermal comfort in an office building," tech. rep., Kuwait Institute for Scientific Research (KISR), 2011. for Kuwait Institute for Scientific Research (KISR).

## Presentations

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- [1] S. A. Ebrahim, "Shaping tomorrow's leaders," (Kuwait), Kuwait Space Center, Kuwait University, March 2024.
- [2] S. A. Ebrahim, "Technical lecture min-series for the mechanical engineering department: Experimental investigation on pool boiling using various surface structures and coolants," (Kuwait), Kuwait University, October 2022.
- [3] S. A. Ebrahim, "Poster: Effects of surface conditions on pool boiling of various cylindrical rods," (Kuwait), Kuwait University, March 2020.

- [4] S. A. Ebrahim and F.-B. Cheung, "Poster: Investigation of surface conditions on the cooling of nuclear fuel rods," (Brighton, England), Surface Wettability Effects on Phase Change Phenomena Workshop, May 2018.
- [5] S. A. Ebrahim and F.-B. Cheung, "Poster: Investigation of surface conditions on the cooling of nuclear fuel rods," (University Park, PA), Materials Day Symposium at The Pennsylvania State University, October 2017.
- [6] S. A. Ebrahim, E. Alat, N. Virani, and F.-B. Cheung, "Poster: Selection of fuel cladding material for nuclear reactors," (University Park, PA), 14th Annual College of Engineering Research Symposium (CERS), April 2017.
- [7] S. A. Ebrahim, "Numerical simulation of heat transfer process in inclined roofs using radiant barrier system," (London), International Reflective Insulation Manufacturers Conference, March 2014.
- [8] S. A. Ebrahim, "Green building certification.," Oil Sector Complex, February 2013.

## Graduate Advisees

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### **Experimental investigations on the effect of utilizing natural seawater in rapid cooling applications**

LATEFA A S A ALHASSAN - Supervisor

December, 2023

### **Studying the Effect of a Tree Distribution Duct System in Improving the Indoor Air Quality, and Reducing Cross-Contamination**

YAZAN EMAD ABDELMAJID ALZABEN - Examination Committee Member

March, 2024

### **Experimental Investigation of Heat Transfer Enhancement in Pool Boiling Using Carbon-Based Nanofluids**

HALIMAH H SH Y Y H ALFAILAKAWI - Supervisor

May, 2024

### **Performance Enhancement of Air Conditioning Compressors Using Carbon-Based Nano-Lubricants**

Hessah F S SH Althalab - Examination Committee Member

December, 2024

### **Investigation of Flexible Operation of Power Plants with Pressurized Water Reactor: Thermodynamic and Energy Transfer Analysis**

ZAIDOUN HUSNI SULEIMAN ASOUS - Supervisor

April, 2025

### **Experimental investigation on the effects of magnetic nanoparticles in rapid cooling applications**

MUNIRAH S E S A A ALBURAIDI - Supervisor

April, 2025

### **Thermophysical Properties of Octanoic Acid and Ionic Liquid [EMIM][NTf<sub>2</sub>] as Solvents in Directional Solvent Extraction Desalination**

ALAA N Y M N ALFOUDRI - Examination Committee Head

October, 2025

### **Integrating Hydrogen Production with Humidification-Dehumidification Desalination**

ALI MOHAMMAD NOTHERI - Examination Committee Head

November, 2025

### **Experimental Study of Heat Transfer Enhancement in Rapid Cooling using Hybrid Nanofluids**

Budour F A M A Alrubaiah- Supervisor

April, 2026

## Certificates

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- Advance Practitioner of Psychological Counseling, Concord International Academy, April 2011
- Professional trainer from the International Teaching Training Coaching Council (ITTCC), November 2010

## Honors and awards

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| <b>Scientific Poster Award, third place in faculty members category</b><br><i>1st scientific research conference - Kuwait University</i>                                 | 2022 |
| <b>Scientific Poster Award, third place in faculty members category</b><br><i>Poster Day - Kuwait University</i>                                                         | 2021 |
| <b>The Second Annual Vizzies Award</b><br><i>Image Award, Second Place</i>                                                                                               | 2018 |
| <b>Mechanical and Nuclear Graduate Students Poster Competition at Penn State</b><br><i>Poster Presentation, Third Place</i>                                              | 2017 |
| <b>14th Annual College of Engineering Research Symposium (CERS 2017)</b><br><i>Image Award for Art in Science, Third Place</i>                                           | 2017 |
| <b>Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah Award (graduate level)</b><br><i>Highest GPA in the Mechanical Engineering Department at Kuwait University, 3.84/4.0</i>      | 2015 |
| <b>Kuwait University</b><br><i>Scholarship</i>                                                                                                                           | 2014 |
| <b>Kuwait University</b><br><i>Distinguished Young Graduate Researcher in the Period of 2003 - 2014</i>                                                                  | 2013 |
| <b>Kuwait Institute for Scientific Research</b><br><i>Scholarship</i>                                                                                                    | 2013 |
| <b>Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah Award (Undergraduate level)</b><br><i>Highest GPA in the Mechanical Engineering Department at Kuwait University, 3.94/4.0</i> | 2013 |

## Service

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|-------------------------------------------------------------------------------|------|
| <b>Renewable Energy</b><br><i>Reviewer</i>                                    | 2025 |
| <b>Geoenergy Science and Engineering</b><br><i>Reviewer</i>                   | 2025 |
| <b>Research Committee</b><br><i>Coordinator</i>                               | 2024 |
| <b>Technical Lecture Coordinator</b><br><i>Coordinator</i>                    | 2024 |
| <b>Mechanical Engineering Annual Report Coordinator</b><br><i>Coordinator</i> | 2024 |
| <b>ENG208 Engineering Thermodynamics I course</b><br><i>Coordinator</i>       | 2024 |
| <b>Applied Thermal Engineering</b><br><i>Reviewer</i>                         | 2024 |
| <b>Applied Thermal Engineering</b><br><i>Reviewer</i>                         | 2024 |
| <b>Engineering Applications of Artificial Intelligence</b><br><i>Reviewer</i> | 2024 |
| <b>Research Committee</b><br><i>Member</i>                                    | 2023 |
| <b>Energy</b><br><i>Reviewer</i>                                              | 2023 |

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|-------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Department Annual Report Coordinator</b><br><i>Coordinator</i>                                                                         | 2023      |
| <b>ENG208 Engineering Thermodynamics I course</b><br><i>Coordinator</i>                                                                   | 2023      |
| <b>Eighth International Conference on Energy Research and Development</b><br><i>Chair</i>                                                 | 2023      |
| <b>Eighth International Conference on Energy Research and Development</b><br><i>Reviewer</i>                                              | 2023      |
| <b>Kuwait Fund for Arab Economic Development</b><br><i>Judge for the 39th training program given to newly graduating Kuwaiti engineer</i> | 2023      |
| <b>Applied Thermal Engineering</b><br><i>Reviewer</i>                                                                                     | 2023      |
| <b>Engineering Applications of Artificial Intelligence</b><br><i>Reviewer</i>                                                             | 2023      |
| <b>Physics of fluids</b><br><i>Reviewer</i>                                                                                               | 2023      |
| <b>Journal of Advanced Research in Fluid Mechanics and Thermal Sciences</b><br><i>Reviewer</i>                                            | 2023      |
| <b>Eighth International Conference on Energy Research and Development</b><br><i>Reviewer</i>                                              | 2023      |
| <b>Membership Promotion Committee, ASHRAE</b><br><i>Chair</i>                                                                             | 2022      |
| <b>Thermal Science and Engineering Progress</b><br><i>Reviewer</i>                                                                        | 2022      |
| <b>Physics of fluids</b><br><i>Reviewer</i>                                                                                               | 2022      |
| <b>International Journal of Mass and Heat Transfer</b><br><i>Reviewer</i>                                                                 | 2019-2023 |
| <b>Seventh International Conference on Energy Research and Development</b><br><i>Reviewer</i>                                             | 2019      |
| <b>Jordan Journal of Mechanical and Industrial Engineering</b><br><i>Reviewer</i>                                                         | 2019      |
| <b>Applied Thermal Engineering</b><br><i>Reviewer</i>                                                                                     | 2018      |
| <b>Research Committee</b><br><i>Member</i>                                                                                                | 2018      |
| <b>Thermo-Fluids Labs Committee</b><br><i>Member</i>                                                                                      | 2018      |
| <b>Kuwait Third Annual Pre-Engineering Design Competition</b><br><i>Member in Judge Committee</i>                                         | 2013      |

## Research Projects

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*Principal Investigator* *December 2025*  
Influence of Surfactant Additives on Rheological Properties and Quenching Performance of FeCrAl Rods (EM06-25)

*Principal Investigator* *June 2025*  
Modify an Existing Setup to Investigate the Effect of Flow Boiling on the Heat Transfer Enhancement (EM01-25)

*Principal Investigator* *June 2025*  
Modify an Existing Setup to Investigate the Effect of Flow Boiling on the Heat Transfer Enhancement (EM01-25)

*Principal Investigator* *April 2025*  
Design and build a new setup at Kuwait University to investigate the effect of nanofluids on the heat transfer enhancement during pool boiling (EM05-24)

*Contributer* *September 2023*  
Investigation of Nano-lubricants for Refrigeration Systems for Urban Energy Resilience - Funded by Kuwait Foundation for the Advancement of Sciences (KFAS) (CN2235EM1547)

*Contributor* *September 2023*  
Development of a Compressor Test Stand to Measure Compressor Performance with Nano-lubricant - Funded by GRADUATE STUDIES PROJECT (YE01/23)

*Principal Investigator* *May 2023*  
Consequences of active magnetic field on the film boiling region while quenching under hybrid nanofluid environment (EM03-22)

*Principal Investigator* *September, 2022*  
Effects of various shapes and characteristic lengths on the rapid cooling of vertical rods in various pool dimensions (EM01-22)

*Contributor* *January, 2022*  
Experimental Investigation of the Tribological and Thermal Properties of Nanodiamond as Lubricating Oil Additives for Air Conditioning Systems (EM03-20)

*Principal Investigator* *November, 2021*  
An Experimental Investigation on Transient Pool Boiling Heat Transfer during Rapid Cooling of Cylindrical Rods in Carbon-based Nanofluids (EM02-21)

*Principal Investigator* *November, 2020*  
Heat Transfer Characteristics for Quenched Hot Rods in Coastal Waters of Kuwait: Arabian Gulf Case Study (EM05-20)

*Principal Investigator* *March, 2019*  
Enhancement of pool boiling heat transfer using quenching of heated surface in nanofluids (ZE05/18)

*Principal Investigator* *2013*  
Moisture effects on the thermal performance of insulation in walls: Prediction of moisture condensation in building envelope

*Principal Investigator* *2013*  
Indoor air quality and thermal comfort: Assessment of indoor air quality and thermal comfort in an office building

## Supervision of Graduate Students

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*Ms. Thesis Convener* *Under Review*  
Thermophysical Properties of Octanoic Acid and Ionic Liquid [EMIM][NTf<sub>2</sub>] as a Solvents in Directional Solvent Extraction Desalination , Eng. Alaa Alfoudari

*Ms. Thesis Convener* *Under Review*  
Integrating Hydrogen Production with Humidification-Dehumidification Desalination, Eng. Ali Notheri

*Ms. Thesis Supervisor* *April 2025*  
Experimental Investigations on the Effects of Magnetic Nanoparticles in Rapid Cooling Applications, Eng. Munira AlBuraidi

*Ms. Thesis Supervisor* *April 2025*  
Experimental Investigations of the Stability and Rheological Behavior of MWCNT-TiO<sub>2</sub>/EG and DW Nanofluid, Eng. Hnan Alshehemah

*Ms. Thesis Supervisor* *April 2025*  
Investigation of Flexible Operation of Power Plants with Pressurized Water Reactor: Thermodynamic and Energy Transfet Analysis, Eng. Zaidoun Asous

*Ms. Thesis Committee member* *December 2024*  
Performance Enhancement of Air Conditioning Compressors Using Carbon-Based Nano-Lubricants, Eng. Hessah Althalab

*Ms. Thesis Committee member* *September 2024*  
Studying the Effect of a Tree Distribution Duct System in Improving the Indoor Air Quality, and Reducing Cross-Contamination, Eng. Yazan Alzeben

*Ms. Thesis Supervisor* *July 2024*  
Experimental Investigations on the Effects of Using Variable Nanofluids on the Heat Transfer Enhancement, Eng. Halimah AlFailakawi

*Ms. Thesis Supervisor* *February 2024*  
Experimental investigations on the effect of utilizing natural seawater in rapid cooling applications, Eng. Latefa Alhassan

*Ms. Thesis Committee member* *June 2022*  
Thermal Performance Analysis for an Economized Vapor Injection System at High Ambient Temperature Climates: Kuwait Case, Eng. Abdullah Abdal

## Technical skills

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Computer Skills.....

**Microsoft Office:** Word, Excel, and PowerPoint

**Programming Languages:** C++, MATLAB, ImageJ, MAPLE

**Engineering Software:** SigmaPlot, Engineering Equation Solver (EES), eQuest Program, ANSYSY, COMSOL Multiphysics package

**Material characterization software:** XRD analysis: JADE, Surface Wettability: DROPImage, Surface roughness: Nexview 3D and Mx<sup>TM</sup>

Material Characterizations.....

**Sample Preparation:** cutting, grinding, polishing

**Characterizing Techniques:** Optical Microscopy, Scanning Electron Microscopy (SEM), Energy Dispersive Spectroscopy (EDS), Field Emission Scanning Electron Microscopy (FESEM), X-Ray Diffraction (XRD), Optical profilometer, Automated Goniometer/ Tensiometer

## Training Courses

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- Training on using surface characterization analyses including Optical Microscopy, Scanning Electron Microscopy, (SEM), Energy Dispersive Spectroscopy (EDS), Field Emission Scanning Electron Microscopy (FESEM), X-Ray Diffraction (XRD), Optical profilometry, and Automated Goniometer/ Tensiometer in Material Characterization Lab (MCL) at the Millennium Science Complex, The Pennsylvania State University [2017]
- Training course: An introduction to imaging techniques at the Material Characterization Lab (MCL) at the Millennium Science Complex, The Pennsylvania State University [January, 2017]
- Development of Leadership Skills [January, 2012]
- Attended Kuwait Green Building Form [May, 2012]
- Presented a seminar on *Energy conservation: National and International Perspective* [February, 2011]
- Smart Approach towards Implementing Successful Demand Side Management Projects course [May, 2011]
- Certification in LEED for Existing Building [April, 2011]
- Training in London about Energy Audit and Management [July, 2011]
- Participated in the preparation of the International Conference for Enhanced Building Operations (ICEBO) 2010 held at Kuwait Institute for Scientific Research (KISR) [2010]
- Attended the World Future Energy Summit (WFES) 2010 held in Abu Dhabi
- MATLAB Course [October, 2010]
- MS-Excel: Advanced Course [November, 2010]
- Desalination Technologies for Seawater course [December, 2010]
- Internal training in KISR about *Indoor Air Quality, thermal comfort and HVAC systems* [2010]
- Building Energy Simulation for LEED Rating Analysis using eQuest course [December, 2010]

## Languages

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**Arabic:** Spoken and written

**English:** Spoken and written