

# Anis Allagui, Ph.D

Born: 07 Nov 1981

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## IDENTIFYING INFORMATION

### Employment History

- 2025 – Present **Professor**, Dept. of Sustainable & Renewable Energy Engineering, University of Sharjah, Sharjah, United Arab Emirates.
- 2023 – Present **Courtesy Associate Professor**, Dept. of Electrical and Computer Engineering, Florida International University, Miami, NC, United States.
- 2020 – 2023 **Courtesy Associate Professor**, Dept. of Mechanical & Materials Engineering, Florida International University, Miami, NC, United States.
- 2019 – Present **Associate Professor**, Dept. of Sustainable & Renewable Energy Engineering, University of Sharjah, Sharjah, United Arab Emirates.
- 2013 – 2019 **Assistant Professor**, Dept. of Sustainable & Renewable Energy Engineering, University of Sharjah, Sharjah, United Arab Emirates.
- Summer 2018 **Visiting Researcher**, Materials Science & Engineering, North Carolina State University, Raleigh, NC, United States.
- Summer 2015 **Visiting Researcher**, Dept. of Chemical & Biological Engineering, University of Ottawa, Ottawa, ON, Canada.
- 2011 – 2013 **Postdoctoral Fellow, Fonds de recherche du Québec – Nature et technologies (FQRNT)**, Dept. of Chemical & Biological Engineering, University of Ottawa, Ottawa, ON, Canada.

### Education

- 2011 **Ph.D in Mechanical Engineering**, Concordia University, Montreal, ON, Canada.  
Dissertation On the Electrochemical Discharges for Nanoparticles Synthesis  
Advisor Prof. Rolf Wüthrich
- 2007 **Masters in Thermal Energy – Engineering Mechanics**, Ecole Polytechnique de l'université de Nantes, Nantes, France.  
Dissertation Heating of electrical resistances on polycrystalline Si substrates.  
Advisor Prof. Yves Scudeller (deceased)

### Research Interests

**Electrochemical energy storage/conversion devices:** electric double-layer capacitors, pseudocapacitors, fractional capacitors, multivalent ion batteries, hybrid (alkaline-acid) electrolyte batteries

**Mathematical modeling:** impedance spectroscopy, time-frequency analysis, random signal excitation for impedance measurements, fractional-order analysis, electrokinetics, fractional kinetics, fractional relaxation, sub- and superdiffusion, superstatistics, memory effect, oscillators, ac line filtering.

## Professional Development

- 2017 **Institute of Leadership in Higher Education**, *University of Sharjah*, Sharjah, UAE.
- Participated in a training workshop on writing effective course learning outcomes.
- 2015 **Sharjah's 1<sup>st</sup> Workshop on Computational Science and Engineering**, *University of Sharjah*, Sharjah, UAE.
- Examined first-principles calculations of the electronic band structure of condensed matter systems using Quantum Espresso
  - Carried out examples of calculation using Quantum Espresso;
- 2012 **Foundations of Project Management**, *Mitacs*, Ottawa, Canada.
- Reviewed the principles of project management;
  - Learned about and worked with different personalities to improve the team processes and collaboration;
  - Applied the basics of planning and used critical path method (CPM) for scheduling the different sets of project activities;
  - Used risk analysis tools and monitoring of project progress.
- 2009 **Centre for Teaching & Learning Services**, *Concordia University*, Montreal, Canada.
- Examined various approaches to teaching and issues in higher education (learning process, teaching with technology, etc.);
  - Planned a mini lesson and practiced different teaching strategies;
  - Developed a course syllabus for *Introduction to Nonequilibrium Thermodynamics*;
  - Articulated my teaching philosophy statement.

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## HONORS AND AWARDS

- 2025 The African Academy of Sciences Fellowship, class of 2024.
- 2016 The University of Sharjah Annual Incentive Award for Distinguished Faculty Members in Scientific Research.
- 2013 Presidential Award for Best Thesis by the Ministry of Higher Education and Scientific Research in Tunisia.
- 2008 – 2010 University Mission of Tunisia in North America Award, Montreal, Canada.
- 2008 – 2009 Concordia University Teaching Fellowship, Montreal, Canada.
- 2009 Concordia University Multiphysics Workshop Award, Montreal, Canada.  
*Best selected paper award in non-linear dynamics.*
- 2009 Concordia University Graduate Seminar in University Teaching Certificate, Montreal, Canada.
- 2008 Microsystems and Nanoelectronics Research Conference (MNRC), Ottawa, Canada.  
*Silver Leaf Certificate for Best Article.*
- 2008 Concordia University Conference Award Competition for Graduate Students and Postdoctoral Fellows, Montreal, Canada.

## RESEARCH AND SCHOLARSHIP

### Grants and Contracts

- 2024 – 2026 A. Allagui (PI), et al.  
*Development of Redox Aqueous Electrolyte Na-ion Battery with High Energy Storage Performance.*  
College of Graduate Studies and Research – Competitive Research Grant No. 23020406277  
University of Sharjah, Sharjah, United Arab Emirates.  
**AED 120000 (≈ US\$ 32600)**
- 2023 – 2025 A. Allagui (PI), and H. Benanoun  
*Transitioning Electrochemical Energy Devices from Subdiffusive to Superdiffusive Transport.*  
College of Graduate Studies and Research – Competitive Research Grant No. 230020406242  
University of Sharjah, Sharjah, United Arab Emirates.  
**AED 98000 (≈ US\$ 26600)**
- 2021 – 2024 C. Wang, and A. Allagui,  
*Tuning the Frequency Response of Fractional-Order Microsupercapacitors.*  
National Science Foundation, Award Number (FAIN) 2126190  
United States.  
**US\$ 379000**
- 2020 – 2020 A. S. Elwakil, A. Allagui, and S. Majzoub  
*Fast Fourier Transform Spectral Impedance Measurement using Structured Broadband Gaussian Noise Excitation.*  
Spotlight Project, College of Engineering, University of Sharjah  
Sharjah, United Arab Emirates.  
**AED 40000 (≈ US\$ 11000)**
- 2019 – 2021 A. S. Elwakil, H. Alawadhi, and A. Allagui (co-PI)  
*True Physical Random Number Generator using Plasma Micro Discharges for Encryption Applications.*  
Dubai Electronic Security Center (DESC) Innovation Research Grant  
Dubai, United Arab Emirates.  
**AED 350000 (≈ US\$ 100000)**
- 2019 – 2021 M. A. Abdelkareem, A. Allagui (co-PI), D. Zhang, A. Inayat, and H. Alawadhi  
*Development of Photo-electrochemical Fuel Cells for Simultaneous Wastewater Treatment and Power Generation.*  
College of Graduate Studies and Research – Summer Research Grant No. 18020406122  
University of Sharjah, Sharjah, United Arab Emirates.  
**AED 80000 (≈ US\$ 21700)**
- 2018 A. Allagui (PI)  
*The Effect of Ionophobic Nanopores on the Performance Metrics of Electric Double-Layer Capacitors.*  
College of Graduate Studies and Research – Summer Research Grant No. SR827/2018  
University of Sharjah, Sharjah, United Arab Emirates.  
**AED 15000 (≈ US\$ 4500)**

- 2016 – 2018 A. Allagui (PI), A. S. Elwakil, and H. Alawadhi  
*On the Chaotic Behavior of Electric and Spectral Emission Responses of Contact Glow Discharge Electrolysis.*  
 College of Graduate Studies and Research – Grant for Competitive Research Project No. 1602040653-P  
 University of Sharjah, Sharjah, United Arab Emirates.  
**AED 80000 (≈ US\$ 21750)**
- 2016 – 2018 A. Allagui (PI), A. S. Elwakil, M. A. Abdelkareem, and H. Alawadhi  
*Reduced Graphene Oxide-based Double Layer Capacitor for Alternating Current Line Filtering Application.*  
 College of Graduate Studies and Research – Grant for Competitive Research Project No. 1602040634-P  
 University of Sharjah, Sharjah, United Arab Emirates.  
**AED 160000 (≈ US\$ 43500)**
- 2016 – 2018 M. Kaidi, H. Alawadhi, K. Daoudi, and A. Allagui (co-PI)  
*Novel Metal Oxide/Amorphous Composite Coatings for Enhancing Silicon Solar Cells Photoconversion and for High Sensitivity Gas Sensors.*  
 College of Graduate Studies and Research – Grant for Targeted Research Project No. 1602143028-P  
 University of Sharjah, Sharjah, United Arab Emirates.  
**AED 80000 (≈ US\$ 21700)**
- 2015 – 2016 A. Alalami, A. Allagui (co-PI), and H. Alawadhi  
*Microstructural, Optical and Thermal Investigation of Copper Oxide Nano-Materials as Selective Absorbers for Solar Collectors Applications.*  
 College of Graduate Studies and Research – Grant for Collaborative Research Projects  
 University of Sharjah, Sharjah, United Arab Emirates.  
**AED 144000 (≈ US\$ 40000)**
- 2015 A. Allagui (PI)  
*Synthesis of Graphene Microflakes by Electrochemical Exfoliation for Energy Storage Applications: Conventional Electrolysis vs Plasma Micro-discharges.*  
 College of Graduate Studies and Research – Summer Research Grant  
 University of Sharjah, Sharjah, United Arab Emirates.  
**AED 8000 (≈ US\$ 2200)**
- 2014 – 2015 H. Alawadhi and A. Allagui (co-PI)  
*Synthesis and Characterization of Nickel Oxides/Hydroxides Nanoparticles by Contact Glow Discharge Electrolysis for Supercapacitors Applications.*  
 College of Graduate Studies and Research – Grant for Collaborative Research Projects  
 University of Sharjah, Sharjah, United Arab Emirates.  
**AED 100000 (≈ US\$ 30000)**
- 2014 A. Allagui (PI)  
*Plasma Micro-discharges in Aqueous Solutions: A Novel Technique for Hydrogen Production from the Degradation of Ammonia.*  
 College of Graduate Studies and Research – Seed Grant  
 University of Sharjah, Sharjah, United Arab Emirates.  
**AED 20000 (≈ US\$ 6000)**

2011 – 2013 A. Allagui (PI)

Heterogeneous Electrocatalysts by Plasma Micro-discharges

Le Fonds québécois de la recherche sur la nature et les technologies (FQRNT) Postdoctoral fellowship, Canada.

**CA\$ 64000 (≈ US\$ 64000)**

## **Publications**

### **Patents**

6. I. Khakpour, A. R. Baboukani, S. Korouzanfar, A. Allagui, C. Wang. Microsupercapacitors and Methods of Fabricating the Same, US Patent # 11,605,507 B1. 2023
5. A. Elwakil, A. Allagui, and S. Majzoub. Method of Measuring Impedance Using Gaussian White Noise Excitation, US Patent # 11,320,471 B1. 2022
4. I Khakpour, AR Baboukani, A. Allagui, and C Wang. Bipolar Exfoliation and In-Situ Deposition of High-Quality Reduced Graphene, US Patent # 11,352,703 B2. 2022
3. A.R. Baboukani, I. Khakpour, C. Wang, V. Drozd, and A. Allagui Bipolar Exfoliation and Deposition of Phosphorene Onto Negative Feeding Electrode, US Patent # 11,034,584. 2021
2. A. Elwakil, A. Allagui, S. Majzoub, and H. Alawadhi. Atmospheric Pressure Air Microplasma System for True Random Bit Generation, US Patent # 10,922,056. 2021
1. A. Elwakil, A. Allagui, S. Majzoub, and H. Alawadhi. Atmospheric Pressure Air Microplasma System for True Random Bit Generation, WIPO-PCT WO2021/214529A1. 2021

### **Peer-reviewed Journal Articles**

122. A. Allagui, E. H. Balaguera, and A. Elwakil. Energy-based interpretation of the dispersion coefficient of the constant phase element. *J. Phys. Chem. C*, 129(51):22290–22296, 2025
121. A. Allagui, A. S. Elwakil, and C. Psychalinos. On the behavior of distributed networks of fractional-order capacitors. *J. Phys. D*, 58:435502, 2025
120. R. Melhem, A. Allagui, M. Assad, and A. G. Abokhalil. Transient heat diffusion in a semi-infinite resistor-capacitor transmission line in response to a voltage step. *J. Electrochem. Soc.*, 172(10):100527, 2025
119. A. Allagui and A. Elwakil. Generalized distribution function of relaxation times with the Davidson-Cole model as a kernel. *Adv. Theor. Simul.*, 8:e00792, 2025
118. A. Allagui and E. H Balaguera. On the semi-infinite distributed resistor-constant phase element transmission line. *Electrochim. Acta*, 510:145344, 2025
117. A. Allagui, E. H Balaguera, and C. Wang. On the distributed resistor-constant phase element transmission line in a reflective bounded domain. *J. Electrochem. Soc.*, 172(5):056502, 2025
116. R. Melhem, A. Allagui, A. Elwakil, and A. G Abokhalil. Analysis of a network of non-identical parallel-connected supercapacitors. *J. Electrochem. Soc.*, 172(7):070528, 2025
115. H. Zhang, G. Rivera-Sierra, S. Siahjani-Gultekin, J. Rubio-Magnieto, A. Allagui, I. Sanjuán, D. Franco, A. Guerrero, E. H Balaguera, and J. Bisquert. Transient charging of mixed ionic-electronic conductors by anomalous diffusion. *Adv. Mater.*, page e07739, 2025
114. A. S Elwakil, J. Nako, C. Psychalinos, A. Allagui, and B. Maundy. Complex-order integration/differentiation of a linear function and its experimental verification. *Int. J. Circuit Theory Appl.*, pages 1–10, 2025

113. S. T. Senthilkumar, M. Mouselly, J. BM Parambath, A. Allagui, and H. Alawadhi. High-performance water-in-salt electrolyte-enabled zinc-graphite batteries with bromine dual electrochemical processes. *J. Energy Chem.*, 107:345–356, 2025
112. E. H Balaguera and A. Allagui. Characteristic times in the infinite charge landscape of the universal capacitor. *J. Power Sources*, 652:237542, 2025
111. A. Allagui, A. S Elwakil, J. Nako, and C. Psychalinos. Analog filters based on the mittag-leffler functions. *Signal Process.*, 233:109953, 2025
110. A. S Elwakil, A. Allagui, M. B Elamien, C. Psychalinos, and B. Maundy. Closed form expressions for the input impedance of some 2-d fractal circuit networks. *IEEE Trans. Circuits Syst. II Express Briefs*, 2024
109. E. H Balaguera and A. Allagui. Limit capacitance of the constant phase element. *Journal of Energy Storage*, 90:111801, 2024
108. E. H Balaguera and A. Allagui. Time delay in the charge/discharge of fractional-order capacitive energy storage devices. *J. Power Sources*, 620:235094, 2024
107. A. Allagui, G. Paradezhenko, A. Pervishko, D. Yudin, and H. Benaoum. Fundamental solution of the time-space bi-fractional diffusion equation with a kinetic source term for anomalous transport. *Sci. Rep.*, 14(1):12886, 2024
106. S. T. Senthilkumar, H. Alawadhi, and A. Allagui. Enhancing aqueous zn-mn battery performance using na<sup>+</sup> ion conducting ceramic membrane. In *J. Phys. Conf. Ser.*, volume 2751, page 012005, 2024
105. A. Allagui, A. Elwakil, and E. H Balaguera. Exact solution for the electrical response of a constant phase element with a series resistance to linear voltage sweep. *J. Power Sources*, 613:234907, 2024
104. A. Allagui and A. S. Elwakil. Procedure for obtaining the analytical distribution function of relaxation times for the analysis of impedance spectra using the fox *h*-function. *J. Phys. Chem. C*, 128(7):2788–2795, 2024
103. S. Majzoub, A. Allagui, and A. S. Elwakil. Wide bandwidth signals for joint time-frequency characterization of non-linear and time-varying circuits. *IEEE Sens. J.*, 23(24):30565–30571, 2023
102. G. Paradezhenko, D. Prodan, A. Pervishko, D. Yudin, and A. Allagui. Fractional marcus-hush-chidsey-yakopcic current-voltage model for redox-based resistive memory devices. *Phys. Chem. Chem. Phys.*, 2023
101. M. A. George, A. S. Elwakil, A. Allagui, and C. Psychalinos. Design of Complex-Order PI/PID Speed Controllers and its FPAA Realization. *IEEE Access*, 11:118606–118614, 2023
100. A. Allagui and A. S. Elwakil. On the theory and application of the fractional-order Dirac-delta function. *IEEE Trans. Circuits Syst. II Express Briefs*, 71(3):1461–1465, 2024
99. A. Allagui, O. Awadallah, B. El-Zahab, and C. Wang. Short-time fourier transform analysis of current charge/discharge response of lithium-sulfur batteries. *J. Electrochem. Soc.*, 170(110511), 2023
98. A. Allagui, M. Fouda and A. S. Elwakil, and C. Psychalinos. Time-domain response of supercapacitors using their impedance parameters and fourier series decomposition of the excitation signal. *J. Electroanal. Chem.*, 947(117751), 2023
97. A. S. Elwakil, A. Allagui, A. El-Mesady, A. Elsonbaty, S. Majzoub, and B. J. Maundy. Chaos in inter-state-controlled rlc networks. *IEEE Trans. Circuits Syst. II Express Briefs*, 71(1):470–474, 2023

96. A. Allagui and A. S. Elwakil. Tikhonov regularization for the deconvolution of capacitance from voltage-charge response of electrochemical capacitors. *Electrochim. Acta*, 459:142527, 2023
95. A. S. Elwakil, A. Allagui, C. Psychalinos, and B. J. Maundy. A new class of nonlinear resonance networks modeled by Levinson-Smith and Liénard equations. *IEEE Trans. Circuits Syst. II Express Briefs*, 70(9):3669–3673, 2023
94. A. Al-Ali, A. S. Elwakil, B. Maundy, S. Majzoub, and A. Allagui. Electrical impedance spectroscopy using a wide-band signal based on the Rudin-Shapiro polynomials. *J. Electrochem. Soc.*, 170(4):047501, 2023
93. Z. Bassyouni, A. Allagui, and J. D. Abou Ziki. Microsized electrochemical energy storage devices and their fabrication techniques for portable applications. *Adv. Mater. Technol.*, 8(1):2200459, 2023
92. A. Allagui, D. Zhang, and A. Elwakil. Further experimental evidence of the dead matter has memory conjecture in capacitive devices. *IEEE Trans. Circuits Syst. II Express Briefs*, 70(8):3144–3148, 2023
91. A S Elwakil, C Psychalinos, B Maundy, and A Allagui. On the possible realization of a complex-order capacitive impedance and its applications. *Int. J. Circuit Theory Appl.*, 51(1):500–507, 2023
90. R. Konlechner, A. Allagui, V. N. Antonov, and D. Yudin. A superstatistics approach to the modelling of memristor current–voltage responses. *Physica A*, 614:128555, 2023
89. K. Daoudi, S. Columbus, B P Falcão, R N Pereira, S B Peripolli, K Ramachandran, H Hadj-Kacem, A Allagui, and M Gaidi. Label-free dna detection using silver nanoprism decorated silicon nanoparticles: Effect of silicon nanoparticle size and doping levels. *Spectrochim. Acta Part A*, 290:122262, 2023
88. A. Allagui, A S Elwakil, and C Psychalinos. Comment on “origin of the curie–von schweidler law and the fractional capacitor from time-varying capacitance”[j. pow. sources 532 (2022) 231309]. *J. Power Sources*, 551:232166, 2022
87. A Al-Ali, B Maundy, A Allagui, and A Elwakil. Optimum impedance spectroscopy circuit model identification using deep learning algorithms. *J. Electroanal. Chem.*, 924:116854, 2022
86. A. Elwakil, B. Maundy, and A. Allagui. A note on the analysis of two-coil wireless power transfer systems. *Circuits Syst. Signal Process.*, 42:1808–1817, 2023
85. A. Allagui, H. Benaoum, A. S. Elwakil, and M. Alshabi. Extended  $RC$  impedance and relaxation models for dissipative electrochemical capacitors. *IEEE Trans. Electron Devices*, 2022
84. A. Allagui, A. S. Elwakil, and C. Wang. Time-domain and frequency-domain mappings of voltage-to-charge and charge-to-voltage in capacitive devices. *IEEE Trans. Circuits Syst. II Express Briefs*, 2022
83. A. S. Elwakil, S. Kapoulea, C. Psychalinos, and A. Allagui. Generalizing the Warburg Impedance to a Warburg Impedance Matrix. *AEU Int. J. Electron. Commun.*, 150:154202, 2022
82. A. Elsonbaty, A. Allagui, and A. S. Elwakil. Extended Instantaneous Spectral Analysis (E-ISA) for Advanced Signal Processing. *IEEE Trans. Instrum. Meas.*, 71:1–10, 2022
81. A. Allagui and H. Benaoum. Power-law charge relaxation of inhomogeneous porous capacitive electrodes. *J. Electrochem. Soc.*, 169:040509, 2022

80. S. Majzoub, A. Allagui, and A. S. Elwakil. Time-frequency design of a multi-sine excitation with random phase and controllable amplitude for (bio) impedance measurements. *IEEE Access*, 10:31641–31648, 2022
79. A. Allagui, H. Benaoum, and C. Wang. Deformed Butler–Volmer Models for Convex Semilogarithmic Current-Overpotential Profiles of Li-ion Batteries. *J. Phys. Chem. C*, 126(6):3029–3036, 2022
78. I. Khakpour, A. R. Baboukani, S. Forouzanfar, A. Allagui, and C. Wang. In-situ exfoliation and integration of vertically aligned graphene for high-frequency response on-chip microsupercapacitors. *J. Power Sources*, 516(230701), 2021
77. D. Zhang, S. Majzoub, A. Allagui, and A. S. Elwakil. Parallel and independent true random bitstreams from optical emission spectra of atmospheric microplasma arc discharge. *Plasma Processes Polym.*, 19(1):2100141, 2022
76. A. Al-Ali, A. S. Elwakil, B. J. Maundy, A. Allagui, and M. B. Elamien. Estimating phase error using a hilbert transform-based time-domain technique. *Int. J. Circuit Theory Appl.*, 2021
75. A. Allagui, A. R. Baboukani, A. S. Elwakil, and C. Wang. Electrochemical stability analysis of red phosphorus-based anode for lithium-ion batteries. *Electrochim. Acta*, page 139149, 2021
74. A. Allagui, H. Benaoum, and O. Olendski. On the gouy-chapman-stern model of the electrical double-layer structure with a generalized boltzmann factor. *Physica A*, page 126252, 2021
73. A. Allagui and M. E. Fouda. Inverse problem of reconstructing the capacitance of electric double-layer capacitors. *Electrochim. Acta*, page 138848, 2021
72. A. Allagui and A. S. Elwakil. Possibility of information encoding/decoding using the memory effect in fractional-order capacitive devices. *Sci. Rep.*, 11(1):1–7, 2021
71. I. Khakpour, A. R. Baboukani, A. Allagui, A. Hachicha, and C. Wang. On the mechanistic pathways of exfoliation-and-deposition of graphene by bipolar electrochemistry. *Nanotechnol.*, 32:345603, 2021
70. A. Allagui, A. S. Elwakil, and H. Eleuch. Highlighting a common confusion in the computation of capacitance of electrochemical energy storage devices. *J. Phys. Chem. C*, 125:9591–9592, 2021
69. A. Allagui, A. S. Elwakil, and M. E. Fouda. Revisiting the time-domain and frequency-domain definitions of capacitance. *IEEE Trans. Electron Devices*, 68(6), 2021
68. A. Allagui, A. S. Elwakil, and C. Psychalinos. Decoupling the magnitude and phase in a constant phase element. *J. Electroanal. Chem.*, 888:115153, 2021
67. A. Elwakil, A. Allagui, and C. Psychalinos. On the equivalent impedance of self-similar ladder networks. *IEEE Trans. Circuits Syst. II Express Briefs*, 68(7):2685–2689, 2021
66. A. Allagui, S. Majzoub, A.S. Elwakil, A.E. Rojas, and H. Alawadhi. Atmospheric pressure air microplasma current time series for true random bit generation. *Sci. Rep.*, 10(20971):1–10, 2020
65. A. Allagui, A. S. Elwakil, A. E. Rojas, S. Majzoub, and H. Alawadhi. Parallel random bitstreams from a single source of entropy based on nonthermal electrochemical microplasma. *Plasma Processes Polym.*, 17(12):2000123, 2020
64. D. Zhang, A. Allagui, A. S. Elwakil, Z. Yan, and H. Lu. Active circuit model of low-frequency behavior in perovskite solar cells. *Org. Electron.*, 85:105804, 2020

63. S. Majzoub, A. Allagui, and A. S. Elwakil. Fast spectral impedance measurement method using a structured random excitation. *IEEE Sensors J.*, 20(15):8637 – 8642, 2020
62. K. Daoudi, M. Gaidi, S. Columbus, D. Zhang, A. Allagui, M. Shameer, A. Taieb, and H. Alawadhi. Structural effects of silver-nanoprism-decorated si nanowires on surface-enhanced raman scattering. *Nanotechnol.*, 31:255706, 2020
61. M. E. Fouda, A. Allagui, A. S. Elwakil, S. Das, C. Psychalinos, and A. G. Radwan. Nonlinear charge-voltage relationship in constant phase element. *AEU Int. J. Electron. Commun.*, 117(1533104), 2020
60. A. Allagui, H. Alnaqbi, A. S. Elwakil, Z. Said, A. Hachicha, C. Wang, and M. A. Abdelkareem. Fractional-order electric double-layer capacitors with tunable low-frequency impedance phase angle and energy storage capabilities. *Appl. Phys. Lett.*, 116:013902, 2020
59. A. Allagui, M. Fouda, and A. S. Elwakil. The ragone plot of supercapacitors under different loading conditions. *J. Electrochem. Soc.*, 167(2):020533, 2020
58. M. Fouda, A. S. Elwakil, and A. Allagui. Commercial supercapacitor parameter estimation from step voltage excitation. *Int. J. Circuit Theory Appl.*, 47:1705–1712, 2019
57. A. Allagui, D. Zhang, I. Khakpour, A. S. Elwakil, and C. Wang. Quantification of memory in fractional-order capacitors. *J. Phys. D*, 53(02LT03), 2020
56. A. R. Baboukani, I. Khakpour, V. Drozd, A. Allagui, and C. Wang. Single-step exfoliation of black phosphorus and deposition of phosphorene via bipolar electrochemistry for capacitive energy storage application. *J. Mater. Chem. A*, 7(25548-25556), 2019
55. M. E. Fouda, A. Allagui, A. S. Elwakil, A. Eltawil, and F. Kurdahi. Supercapacitor discharge under constant resistance, constant current and constant power loads. *J. Power Sources*, 435:226829, 2019
54. M. A. Abdelkareem, A. Allagui, Z. Said, A. S. Elwakil, R. Zannern, W. H. Tanveer, and K. Elsaid. Frequency-dependent effective capacitance of supercapacitors using electrospun cobalt-carbon composite nanofibers. *J. Electrochem. Soc.*, 166(12):A2403–A2408, 2019
53. M. E. Fouda, A. S. Elwakil, A. Allagui, H. Rezk, and A. M. Nassef. Convolution-based estimation of supercapacitor parameters under periodic voltage excitations. *J. Electrochem. Soc.*, 166(10):A2267–A2269, 2019
52. I. Khakpour, A. R. Baboukani, A. Allagui, and C. Wang. Bipolar exfoliation and in-situ deposition of high-quality graphene for supercapacitor application. *ACS Appl. Energy Mater.*, 2(7):4813–4820, 2019
51. D. Zhang, A. Allagui, A. S. Elwakil, A. M. Nassef, H. Rezk, J. Cheng, and W. C.H. Choy. On the modeling of dispersive transient photocurrent response of organic solar cells. *Org. Electron.*, 70:42–47, 2019
50. Z. Said, A. Allagui, M. A. Abdelkareem, A. S. Elwakil, H. Alawadhi, R. Zannerni, and K. Elsaid. Modulating the energy storage of supercapacitors by mixing close-to-ideal and far-from-ideal capacitive carbon nanofibers. *Electrochim. Acta*, 301(465-471), 2019
49. E. Sayed, T. Eisa, M. A. Abdelkareem, H. M., A. Allagui, H. Alawadhi, and KJ Chae. Direct urea fuel cells: Challenges and opportunities. *J. Power Sources*, 417:159–175, 2019
48. M. A. Abdelkareem, W. H. Tanveer, E. T. Sayed, M. El haj Assad, A. Allagui, and S. W. Cha. On the technical challenges affecting the performance of direct internal reforming biogas solid oxide fuel cells. *Renewable Sustainable Energy Rev.*, 101(361-375), 2019
47. M. A. Abdelkareem, A. Allagui, E. Sayed, M. Assad, Z. Said, and K. Elsaid. Comparative analysis of liquid versus vapor-feed passive direct methanol fuel cells. *Renew. Energy*, 131:563–584, 2019

46. A. Allagui, D. Zhang, and A. S. Elwakil. Short-term memory in electric double-layer capacitors. *Appl. Phys. Lett.*, 113:253901–5, 2018
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44. A. Allagui, T. J. Freeborn, A. S. Elwakil, M. E. Fouda, B. J. Maundy, A. G. Radwan, Z. Said, and M. A. Abdelkareem. Review of fractional-order electrical characterization of supercapacitors. *J. Power Sources*, 400(457–467), 2018
43. A. E. Rojas, A. Allagui, A. S. Elwakil, and H. Alawadhi. True random bit generators based on current time series of contact glow discharge electrolysis. *J. Appl. Phys.*, 123(20):203301, 2018
42. A. Allagui, A. S. Elwakil, M. Fouda, and A. G. Radwan. Capacitive behavior and stored energy in supercapacitors at power line frequencies. *J. Power Sources*, 390:142–147, 2018
41. Z. Said, A. Allagui, M. A. Abdelkareem, H. Alawadhi, and K. Elsaid. Acid-functionalized carbon nanobers for high stability, thermoelectrical and electrochemical properties of nanofluids. *J. Colloid Interface Sci.*, 520:50–57, 2018
40. C. Psychalinos, A. S. Elwakil, A. Allagui, and A. Tepljakov. Special issue on recent advances in the design and applications of fractional-order circuits and systems. *AEU Int. J. Electron. Commun.*, 81:132 – 135, 2017
39. A. Allagui, A. S. Elwakil, and T. J. Freeborn. Supercapacitor reciprocity and response to linear current and voltage ramps. *Electrochim. Acta*, 258:1081–1085, 2017
38. A. Allagui, Z. Said, M. A. Abdelkareem, A. S. Elwakil, M. Yang, and H. Alawadhi. DC and AC performance of graphite films supercapacitors prepared by contact glow discharge electrolysis. *J. Electrochem. Soc.*, 164(12):A2539–A2546, 2017
37. A. S. Elwakil, A. Allagui, T.J. Freeborn, and B.J. Maundy. Further experimental evidence of the fractional-order energy equation in supercapacitors. *AEU Int. J. Electron. Commun.*, 78:209 – 212, 2017
36. A. Allagui, J. M. Ashrafa, M. Khalila, M. A. Abdelkareem, A. S. Elwakil, and H. Alawadhi. All-solid-state double-layer capacitors using binderless reduced graphene oxide thin films prepared by bipolar electrochemistry. *ChemElectroChem*, 4:2084–2090, 2017
35. A. S. Elwakil, A. Agambayev, A. Allagui, and K. N. Salama. Experimental demonstration of fractional-order oscillators of orders 2.6 and 2.7. *Chaos, Solitons Fractals*, 96:160–164, 2017
34. A.S. Elwakil, A. Radwan, T. Freeborn, A. Allagui, B.J. Maundy, and M. Fouda. Low-voltage commercial super-capacitor response to periodic linear-with-time current excitation: A case study. *IET Circuits, Devices & Systems*, 11(3):189–195, 2017
33. S. Ntais, A. Serov, N. I. Andersen, A. J. Roy, A. Allagui, Zhen Lu, X. Cui, E. A. Baranova, and P. Atanassov. Promotion of ammonia electrooxidation on Pt nanoparticles by nickel oxide support. *Electrochim. Acta*, 222:1455–1463, 2016
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29. M. E. Fouda, A. S. Elwakil, A. G. Radwan, and A. Allagui. Power and energy analysis of fractional-order electrical energy storage devices. *Energy*, 111:785–792, 2016
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19. A. Allagui and R. Wüthrich. Nonequilibrium thermodynamics for the stability study of contact glow discharge electrolysis. *Plasma Processes Polym.*, 12(7):691–697, 2015
18. A. Allagui, T. Salameh, and H. Alawadhi. Dendritic CuO structures synthesized by bipolar electrochemical process for electrochemical energy storage. *J. Electroanal. Chem.*, 750:107–113, 2015
17. A. Allagui and A. Elwakil. On the N-shaped conductance and hysteretic behavior of contact glow discharge electrolysis. *Electrochim. Acta*, 168:173–177, 2015
16. A. Allagui, N. Brazeau, H. Alawadhi, F. Almomani, and E. A. Baranova. Cathodic contact glow discharge electrolysis for the degradation of liquid ammonia solutions. *Plasma Processes Polym.*, 12(1):25–31, 2015
15. A. H. Alami, A. Allagui, and H. Alawadhi. Synthesis and optical properties of electrodeposited crystalline Cu<sub>2</sub>O in the Vis–NIR range for solar selective absorbers. *Renew. Energy*, 82:21–25, 2015
14. A. H. Alami, A. Allagui, and H. Alawadhi. Microstructural and optical studies of CuO thin films prepared by chemical ageing of copper substrate in alkaline ammonia solution. *J. Alloys Compd.*, 617:542–546, 2014

13. A. Allagui, A. H. Alami, E. A. Baranova, and R. Wüthrich. Size-dependent capacitance of nickel oxide nanoparticles synthesized with contact glow discharge electrolysis. *J. Power Sources*, 262:178–182, 2014
12. L. Assaud, E. Monyoncho, K. Pitzschel, A. Allagui, M. Hanbücken, E. A. Baranova, and L. Santinacci. 3D-nanoarchitected Pd/Ni catalysts prepared by atomic layer deposition for formic acid electrooxidation. *Beilstein J. Nanotechnol.*, 5:162–172, 2014
11. A. H. Alami and A. Allagui. Design and analysis of a compact solar-driven constant-torque reaction steam turbine. *Energy Convers. Manage.*, 79:456–460, 2014
10. A. Allagui, S. Sarfraz, B. Middleton, F. Almomani, and E. A. Baranova. Electrochemical behaviour of ammonia on Ni<sub>98</sub>Pd<sub>2</sub> nano-structured catalyst. *Int. J. Hydrogen Energy*, 39(1):41–48, 2014
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8. A. Allagui, E. A. Baranova, and R. Wüthrich. Synthesis of Ni and Pt nanomaterials by cathodic contact glow discharge electrolysis in acidic and alkaline media. *Electrochim. Acta*, 93(0):137–142, 2013
7. E. A. Baranova, A. Cally, A. Allagui, S. Ntais, and R. Wüthrich. Nickel particles with increased catalytic activity towards hydrogen evolution reaction. *C.R. Chim.*, 16(1):28–33, 2013
6. A. Allagui, M. Oudah, X. Tuaev, S. Ntais, F. Almomani, and E. A. Baranova. Ammonia electro-oxidation on alloyed PtIr nanoparticles of well-defined size. *Int. J. Hydrogen Energy*, 38(5):2455–2463, 2013
5. A. Allagui, S. Sarfraz, B. Middleton, F. Almomani, and E. A. Baranova. Ammonia electrooxidation in alkaline media on NiPd nanoparticles: Effect of pH and concentration. *ECS Trans.*, 50(2):1897 – 1906, 2013
4. A. Allagui and R. Wüthrich. The electrochemical discharges for the synthesis of nickel oxide nanoparticles: Characterization and mechanism. *Electrochim. Acta*, 58(0):12 – 18, 2011
3. R. Wüthrich and A. Allagui. Building micro and nanosystems with electrochemical discharges. *Electrochim. Acta*, 55(27):8189–8196, 2010
2. M. Mousa, A. Allagui, H. D. Ng, and R. Wüthrich. The effect of thermal conductivity of the tool electrode in spark-assisted chemical engraving gravity-feed micro-drilling. *J. Micromech. Microeng.*, 19(1):015010, 2009
1. A. Allagui and R. Wüthrich. Gas film formation time and gas film life time during electrochemical discharge phenomenon. *Electrochim. Acta*, 54(23):5336–5343, 2009

## Books/Monographs

1. R. Wüthrich and A. Allagui. *Electrolysis in aqueous solutions under extreme current densities – fundamentals and applications of electrochemical discharge phenomenon*. Nova Science Publishers Inc., 2010

## Book Chapters

2. D. Zhang and A. Allagui. Fundamentals and performance of solar photovoltaic systems. In M. El-Haj Assad and M. A. Rosen, editors, *Design and Performance Optimization of Renewable Energy Systems*, chapter 8, pages 117–129. Academic Press, 2021
1. R. Wüthrich and A. Allagui. *Electrolysis: Theory, Types and Applications*, chapter 5. Nova Science Publishers Inc., 2010

## In Collections

1. HongGuang Sun, Yong Zhang, Dumitru Baleanu, Wen Chen, and YangQuan Chen. A new collection of real world applications of fractional calculus in science and engineering. *Commun. Nonlinear Sci. Numer. Simul.*, 64:213 – 231, 2018. (Section 10.2)

## Papers/Abstracts in Refereed Conference Proceedings (Selected from Past 5 Years)

6. A. S. Elwakil, C. Psychalinos, B. J. Maundy, and A. Allagui. Observation of a pinched-loop in a current-excited inductive circuit. In *IEEE International Symposium on Circuits and Systems (ISCAS)*, 2023
5. A. Allagui, H. Benaoum, A. Elwakil, and M. A. Alshabi. Non-exponential discharge dynamics in electrochemical capacitors. In *Energy Harvesting and Storage: Materials, Devices, and Applications XII*, volume 12090, pages 26–30. SPIE, 2022
4. I. Khakpour, A. R. Baboukani, A. Allagui, and C. Wang. Contribution of different exfoliation mechanisms in the bipolar electrochemical fabrication of graphene. In *PRiME 2020 (ECS, ECSJ, & KECS Joint Meeting)*, 2020
3. T. Freeborn, A.S. Elwakil, and A. Allagui. Supercapacitor fractional-order model discharging from polynomial time-varying currents. In *2018 International Symposium on Circuits and Systems*, pages 1–5, 2018
2. T. J. Freeborn, A. Allagui, and A. Elwakil. Modelling supercapacitors leakage behaviour using a fractional-order model. In *2017 European Conference on Circuit Theory and Design (ECCTD)*, pages 1–4, Sept 2017
1. A. Allagui, Z. Said, M. A. Abdelkareem, A. S. Elwakil, M. Yang, and H. Alawadhi. Dc energy storage and ac line filtering of graphene micro-sheets prepared with plasma micro-discharges. In *International Conference on Advances in Functional Materials, University of California, Los Angeles Campus, USA, Aug. 2017*

## Conference Presentations (Selected from Past 5 Years)

5. I. Khakpour, A. Allagui, X. Pan, Y. Zhao, and C. Wang. Bipolar electrochem graphene microsupercaps. In *Energy Harvesting and Storage: Materials, Devices, and Applications XIV*, volume 13027, pages 15–17. SPIE, 2024
4. Xian Pan, Kepei Miao, Azmal Huda Chowdhury, Borzooye Jafarizadeh, Anis Allagui, and Chunlei Wang. Bipolar electrochemistry enabled synthesis and application of 2d materials. In *Electrochemical Society Meeting Abstracts 245*, number 53, pages 2824–2824. The Electrochemical Society, Inc., 2024
3. A. Allagui, K. Miao, and C. Wang. Joint time-frequency signal analysis of li-ion batteries. In *Electrochemical Society Meeting Abstracts 245*, number 53, pages 2883–2883. The Electrochemical Society, Inc., 2024
2. A. Allagui, H. Benaoum, A. Elwakil, and M. A. Alshabi. Non-exponential discharge dynamics in electrochemical capacitors. In *Energy Harvesting and Storage: Materials, Devices, and Applications XII*, volume 12090, pages 26–30. SPIE, 2022
1. I. Khakpour, A. R. Baboukani, A. Allagui, and C. Wang. Bipolar electrochemically exfoliated graphene for supercapacitor application. In *235<sup>th</sup> ECS Meeting*, Dalas, TX, USA, May 2019

## Technical Reports

4. A. Allagui and G. Valette. Echauffement de résistances électriques sur poly-silicium. Technical report, Ecole Polytechnique de Nantes, Nantes, France, 2007.

3. A. Allagui. Joule-thompson effect in gas pressure regulators. Technical report, RMG Regel + Messtechnik GmbH. by Honeywell, Kassel, Germany, 2007.
2. A. Allagui. Gas pipe transient flow calculation. Technical report, Bryan Donkin RMG Ltd., by Honeywell, Chesterfield, England, 2006.
1. A. Allagui. Acoustic pressure level in gas pressure regulators. Technical report, Bryan Donkin RMG Ltd., by Honeywell, Chesterfield, England, 2006.

## Research Experience

2011 – 2013 **Postdoctoral Researcher**, *University of Ottawa*, Ottawa, Canada.

- Managed a group of 8 research engineers including performance review, daily supervision, mentoring and training;
- Handled the responsibilities of publishing the results of significant research projects;
- Provided advice on research and development options available in the group;
- Characterized nanomaterials by SEM-TEM/EDS, XRD, XPS, SAXS, ICP-AES;

2006 **R&D Engineer**, *Honeywell Process Solutions*, Chesterfield, England.

- Designed and implemented a customized spring calculation software to reduce project lead work and engineering rework;
- Designed and implemented a customized acoustic pressure level calculation software for gas pressure regulators;
- Simulated transient gas flow in pipes as part of gas valves products development.

## TEACHING AND CURRICULUM DEVELOPMENT

### Teaching Interests

- Materials Science & Engineering
- Energy Storage
- Probability & Statistics
- Heat Transfer
- Statics and Dynamics
- Solar PV Systems
- Fuel Cells
- Numerical Methods
- Fluid Mechanics
- Thermodynamics

### Teaching Experience

2025 – Present **Professor**, *University of Sharjah*, Sharjah, UAE.

Fall 2025/26 0406301 Statics & Dynamics, 0406321 Solar PV Systems Lab

Spring 2024/25 0406301 Statics & Dynamics

2019 – Present **Associate Professor**, *University of Sharjah*, Sharjah, UAE.

Fall 2024/25 0406301 Statics & Dynamics

Spring 2023/24 0406301 Statics & Dynamics

Fall 2023/24 0406201 Materials Engineering

Spring 2022/23 0406320 Solar PV Systems, 0406512 Numerical Methods

Fall 2022/23 0406320 Solar PV Systems, 0406512 Numerical Methods

Spring 2021/22 0406320 Solar PV Systems, 0402241 Random Signal Theory

Fall 2021/22 0406320 Solar PV Systems

Spring 2020/21 0406101 Statics and Dynamics, 0406320 Solar PV Systems

Fall 2020/21 0406201 Materials Engineering, 0406320 Solar PV Systems

Spring 2019/20 0406201 Materials Engineering, 0406463 Fuel Cells, 0406206 Energy Storage

Fall 2019/20 0406206 Energy Storage

Spring 2018/19 0406206 Energy Storage, 0406320 Solar PV Systems

- 2013 – 2019 **Assistant Professor, University of Sharjah, Sharjah, UAE.**
- Fall 2018/19 0406206 Energy Storage, 0406463 Fuel Cells
  - Spring 2017/18 0406320 Solar PV Systems, 0406201 Materials Engineering, 0406491 Senior Design Project
  - Fall 2017/18 0406206 Energy Storage, 0406491-2 Senior Design Project
  - Spring 2016/17 0406206 Energy Storage, 0406201 Materials Engineering
  - Fall 2016/17 0406206 Energy Storage
  - Spring 2015/16 0406206 Energy Storage and Transmission, 0406201 Materials Engineering
  - Fall 2015/16 0406206 Energy Storage and Transmission
  - Spring 2014/15 0406201 Materials Engineering, 0406206 Energy Storage and Transmission
  - Fall 2014/15 0406201 Materials Engineering, 0406463 Fuel Cells
  - Spring 2014/15 0406440 Biomass Energy Systems, 0406463 Fuel Cells
  - Fall 2013/14 0406201 Fluid Mechanics, 0406463 Fuel Cells
- 2012 **Substitute Professor, University of Ottawa, Ottawa, Canada.**
- Fall 2012/13 CHG 3724 Chemical Thermodynamics
- 2008 – 2011 **Substitute Professor, Concordia University, Montreal, Canada.**
- Winter 2010/11 BCEE ENGR 251/4 Thermodynamics I
  - Fall 2010/11 MIE ENGR 371/2 Probability and Statistics in Engineering
  - Summer 2007/08 MIE ENGR 391/1 Numerical Methods in Engineering

## ADVISING AND MENTORING

### *Undergraduate Student Projects (Selected from Past 5 Years)*

- 2021 – 2022 **Ali Alameeri, Saleh Alameri, Saeed Alshamsi.**  
Electrochemical recycling of lithium
- 2019 – 2020 **Rahaf Alsani, Huda Balghaith, Maha Al-Ali.**  
Inkjet Printed Carbon Material for Electrochemical Energy Application
- Afra Ahli, Meera Almuaini, Juwahir Alkaabi.**  
High-energy/high-power hybrid batteries/supercapacitors system for electrical vehicles applications
- Hebatalla Gamil, Somaia Ahmed, Meera Alhammadi.**  
Mixed Metal Oxides for Electrochemical Ammonia Sensors
- Omar Muhaisen, Iyas Murad, Adnan Abdou-Hassan.**  
Performance of a Hybrid Solar Photovoltaics and Dimethyl Ether Methanol Thermochemical System
- Mohamed Rlrayah, Osman Saleh, Aasim Ahmed.**  
Piezo-Electric Power Generation in Electric Vehicles

## RELATED WORK EXPERIENCE

- 2007 – 2010 **Proposal Consultant, Leader Consult Group, Nabeul, Tunisia.**
- Implemented and maintained new ERP-CRM practice to manage existing accounts resulting in 30% account retention and 150% sales-growth objectives;
  - Supervised the preparation of tender bid responses (83% dossier qualification) for:
    - gas pressure regulating stations (M\$ 2.0), flowmeters, valves (M\$ 0.5), flow correctors (M\$ 0.1), gas chromatographs (M\$ 1.0), gas pipelines (M\$ 30),
    - power transformers (M\$ 7.0), power lines (M\$ 30),
    - oxidized starch (M\$ 0.8), resins (M\$ 0.5), precious catalysts (M\$ 0.5).

- 2007 **Project Engineer**, *Honeywell Process Solutions*, Kassel & Fürstenwalde, Germany.
- Prepared high impact technical offers for gas pressure expansion stations, thermal power plants, pressure regulators and safety valves;
  - Calculated the filtering, pressure regulating and flow metering units in P&ID diagrams;
  - Improved the Max-Flow software for gas pressure regulating station sizing for faster processing time and readability;
  - Suggested recommendations related to the development of products and services for the North African market.
- 2005 **Gas Turbine Flowmeter Calibration Specialist**, *RMG Messtechnik*, Butzbach, Germany.
- Examined and calibrated RMG's gas turbine flowmeters for custody transfer;
  - Improved the calibration procedure of gas turbines resulting in +50% saving on regular time;
  - Investigated and wrote report on the mutual effect of serially mounted flow meters during calibration;
  - Received quality training on the US flow meters and gas chromatograph process.

## SERVICE AND PUBLIC OUTREACH

### *Service to the Profession*

#### **Editorial Board:**

- 2023 – Present Scientific Reports (Springer Nature).  
 2017 – Present AEÜ - International Journal of Electronics and Communications (Elsevier).  
 2018 – 2021 Heliyon (Elsevier).

#### **Guest Editorials:**

- 2018 Ben Jang, Xin Tu, Chang-jun Liu and Anis Allagui  
 Special Issue on Scientific Advances of Catalysis via Plasma Technology, *Catalysis Today* (Elsevier).  
 2017 Costas Psychalinos, Ahmed S. Elwakil, Anis Allagui and Aleksei Tepljakov.  
 Special Issue on Recent Advances in the Design and Applications of Fractional-Order Circuits and Systems, *AEÜ - International Journal of Electronics and Communications* (Elsevier).

#### **Peer Reviewing for:**

Journal of Power Sources (× 36) , Journal of the Electrochemical Society (× 7), *Electrochimica Acta* (× 9), *Journal of the Electroanalytical Chemistry* (× 3), *IEEE Transactions on Industrial Electronics* (× 4), *IEEE Transactions on Power Electronics* (× 4), *IEEE Transactions on Energy Conversion* (× 2), *IEEE Sensors Journal* (× 1), *Advanced Materials* (× 1), *Scientific Reports* (× 1), *ACS Omega* (× 1), *Journal of Physical Chemistry* (× 1), *ChemPhysChem* (× 1), *Small Methods* (× 1), *Journal of Chemical Technology & Biotechnology* (× 1), *Industrial & Engineering Chemistry Research* (× 1), *Journal of Applied Physics* (× 2), *Communications in Nonlinear Science and Numerical Simulation* (× 1), *Journal of Applied Electrochemistry* (× 1), *Microelectronics Journal* (× 1), *Plasma Science and Technology* (× 3), *ECS Solid State Letters* (× 1), *International Journal of Bifurcation and Chaos* (× 1), *International Journal of Circuit Theory and Applications* (× 3), *Ceramics International* (× 1), *Materials and Design* (× 1), *Water and Environment Journal* (× 1), *Environmental Technology* (× 1)

### *Service to the University/College/Department (Selected from Past 5 Years)*

- 2022 Talk entitled *Anomalous Transport in (Photo)(electro)chemical Devices* for the Dept. of Sustainable and Renewable Energy Engineering, University of Sharjah, Sharjah, UAE.

- 2022 Talk entitled *Normal is Anomalous and Anomalous is Normal: On the Fractional Diffusion in Electrochemical Capacitors* for the Dept. of Sustainable and Renewable Energy Engineering, University of Sharjah, Sharjah, UAE.
- 2021 Talk entitled *Deconvolution of Capacitance* for the Wang's Research Group, Florida International University, FL, United States.
- 2019 Talk entitled *Towards Understanding the Short-Term Memory Effect: Artificial Memory in Electrochemical Capacitors* for the 4<sup>th</sup> Sciences and Engineering Research Groups Forum, University of Sharjah, Sharjah, UAE.
- 2019 Member of Dept. of Sustainable and Renewable Energy Engineering Ph.D Curriculum Committee, University of Sharjah, Sharjah, UAE.
- 2019 Member of Dept. of Sustainable and Renewable Energy Engineering Promotion Committee, University of Sharjah, Sharjah, UAE.
- 2018/20 Member of College of Engineering Research Committee, University of Sharjah, Sharjah, UAE.
- 2018 Talk on *On the Constant-Phase Element for Time- and Frequency-Domain Characterization of Electric Double-Layer Capacitors*, University of Sharjah, Sharjah, UAE.
- Public and Other Service (Selected from Past 5 Years)***
- 2023 Talk on *Anomalous transport in photo(electro)chemical systems* at the American University of Sharjah, UAE
- 2017 Talk on *Opportunities and challenges present for implementing electrochemical energy storage* at Middle East Energy Storage Forum, UAE.

## LANGUAGE SKILLS

- Arabic **Mother tongue**
- English **Fluent**
- French **Fluent**