



Dr. Ahmad Shawqi Barham

Assistant/ Associate Professor (Chemistry)

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Personal Details:
Kuwait • Jordanian
Male • Married

Compassionate and performance-driven professional with extensive experience in teaching chemistry courses. Proven track record of excellence in supporting the induction of development programs in the institution, evaluating student progress, and managing the resources of the learning environment program review and accreditation processes. Expert in developing courses, initiating cross-institution collaborations, and developing and executing the quality procedures and standards within the department. Excellent commitment to teaching excellence and students advising with the demonstrated research capability to enable the development of funded research programmes and publish research findings in refereed journals. Skilled in collaborating with cross-functional teams and creating cooperative working environment.

Education and Credentials

Doctor of Philosophy in Physical Chemistry and Materials Science

University of Limerick, Limerick, Ireland

Dissertation Title: *Crystallization of Lactose-Salt-Protein Mixtures in Humid Air from Amorphous Precursors.*

Master of Science in Applied Chemistry

Jordan University of Science & Technology, Jordan

Dissertation Title: *Sol-Gel Preparation, Characterization and Properties of Encapsulated and Interpenetrated Aminoplast Resin / Silica Hybrid Composite Materials.*

Bachelor of Science in Applied Chemistry: Specialization in Analytical Chemistry

Jordan University of Science & Technology, Jordan

Professional Experience

Chemistry Department, Jordan University, The Hashemite Kingdom of Jordan. 02-10-2022 to date.

Deliver lectures and coordinated the courses, including General Chemistry I, Principles of Industrial Chemistry, General Chemistry LABs for non-chemistry students, General Chemistry LABs for chemistry students, industrial organic chemistry, petrochemical industry. Engage in several committees of quality, curriculum, job interviews, and the departmental website.

General Subjects Department, College of Engineering (CE), University of Business and Technology (UBT), Jeddah, Kingdom of Saudi Arabia
2016 - (01-10 - 2022)

Associate Professor

Deliver lectures and coordinated the courses, including General Chemistry I, General Chemistry LABs I and II (provided lectures and prepared experiments), General Chemistry II, Geology for civil engineers and Industrial Safety Engineering, Communication skills, Pre-Calculus, and Safety Engineering course for postgraduate students. Engage in NCAAA accreditation of the programs in the college of engineering. Develop a complete course file for each course every semester. An active member of the quality committee in the general subject's department.

- Promoted from Assistant Professor to Associate Professor, first to be promoted to this position.
- Published five research papers in good impact journals.
- Implement design of experiments in my electrochemical research papers.

Vice Dean of Scientific Research and Graduated Studies

Oversaw the research and graduate programs. Reviewed all research proposals that received from the faculty members and sent the proposals to the referees. Actively engaged in arranging one conference (gulf education) related to the university. Developed the UBT bulletin and following up with the colleges. Managed the poster research symposium and contributed to the referee's session of the posters.

- Appointed as a first Vice Dean in the university.
- Created a research-focused environment by encouraging the faculty members in conducting research and publishing papers in good impact journals.
- Fostered cross-university collaborations by meeting the visitors from other universities and industry and implement with them agreements of cooperation.
- Directed research improvements for the faculty members by arranging skills development workshops.

College of Engineering (CE), University of Business and Technology (UBT), Jeddah, Kingdom of Saudi Arabia 2012 – 2017
Department Head of the General Subjects

Headed department and managed overall functions. Examined all syllabuses and course files of the physics, mathematics, and chemistry modules on a regular basis with the departmental curriculum committee. Interviewed and hired all new candidates CVs in the department.

- Developed and implemented the quality procedures and standards within the department.
- Guided and advised students in their first year and freshly accepted students.
- Appointed as the first chairman of the general subject's department.

General Subjects Department, College of Engineering (CE), University of Business and Technology (UBT), Jeddah, Kingdom of Saudi Arabia 2010 – 2015

Assistant Professor

Delivered lectures and coordinated the courses, including General Chemistry I, General Chemistry LABs I and II (provided lectures and prepared experiments), General Chemistry II, General Biology, Computational Methods in Engineering, Geology for civil engineers and Materials of construction, Communication skills, Pre-Calculus, and Safety Engineering for postgraduate students.

- Played an active role in the development and amendment of the new curriculum of the engineering programs of the general subject's courses such as Calculus I, II, and III, Linear Algebra, Differential equations, General Chemistry, Physics I and II, Communication skills, English technical, and writing courses.
- Published six research papers in good impact journals.
- Guided and mentored students in their studies and research projects.
- Enhanced teaching skills by attending workshops and seminars regarding the quality of teaching.

Pharmaceutics and Pharmaceutical Technology, School of Pharmacy, Trinity College, University of Dublin, Ireland. 2007–2009

Postdoctoral Research Fellow

Managed the project of particle Engineering of Nanoporous Microparticles, a Platform Technology for Drug Delivery. Supervised the commissioning and operations of a laboratory scale Buchi (B-290) & Niro SD Micro spray dryers for pharmaceutical applications. Observed effect of spray dryer operating conditions on the morphology and form of the particles. Conducted the experimental factorial designs and statistical analysis using the Design-Expert software. Performed thermal analyses such as Differential Scanning Calorimetry (DSC), hyper-DSC and Thermogravimetric Analysis (TGA), Fourier Transform Infrared (FTIR), and Ultra-Violet (UV) spectroscopy, laser diffraction particle sizing, and aerodynamic particle sizing using Anderson Cascade Impactor (ACI) as well as dynamic vapour sorption (DVS), and BET surface area measurements, Scanning electron microscopy (SEM), and Powder X-ray Diffraction (XRD), gas displacement pycnometer for measuring density in materials characterization, and drug release performance using the flow-through dissolution apparatus. Acquired professional trainings in professional training in using High performance liquid chromatography (HPLC), Inverse gas chromatography (iGC), FT4 powder rheometer system for measuring powder flow properties and powder flowability.

- Led and delivered project milestones in collaboration with multiple teams.
- Successfully developed the protocols for the laboratory scale production of drugs in nano-porous particulate form for use in pulmonary drug delivery to the lungs.
- Devised and implemented investigation of the scale-up of the spray-drying process in a pilot facility at Niro GEA Process Engineering Incorporation, Copenhagen, Denmark, using their Mobile Minor spray dryer.
- Improved and perfected drug delivery performance by performing the characterization of physical and chemical properties of the porous particles at all stages of product development using multiple techniques.

Chemical and Environmental Science Department and the Materials and Surface Science Institute (MSSI), University of Limerick, Limerick, Ireland **2003 – 2007**
Teacher and Research Assistance

Delivered services in various disciplines such as Physical Chemistry, Organic Chemistry, Inorganic Chemistry and Analytical Chemistry. Demonstrated laboratories in chemistry-based modules.

- Attained safety induction, instruction, and training courses.
- Delivered support tutorials in the Science Learning Centre and in the Drop-in Centre helping students with their queries in chemistry-based modules.
- Investigated the formation of Alumina-Silicate scales on steel substrates at the Synchrotron radiation facility (BESSY) in Berlin, Germany as part of a team.
- Characterised pharmaceutical compounds for companies such as Pfizer and Stryker on the consultancy basis.

Publications

1. M Fed'a'a, Abdussalam K Qaroush, Khaleel I Assaf, F Eftaiha Ala'a, Ibrahim K Okashah, Amneh H Smadi, Fatima Alsoubani, Ahmad S Barham, Timo Repo, 2023, Sustainable synthesis of cyclic carbonates from CO₂ using zinc adeninium bromide as a biorenewable catalyst, *Inorganica Chimica Acta*, 557, 121716. <https://doi.org/10.1016/j.ica.2023.121716>, Impact factor: 2.8, CiteScore – Q2.
2. Basma ElZein, Numan Salah, Ahmad S. Barham, Ali Elrashidi, Mohammed Al Khatab, and Ghassan Jabbour. 2023. "Influence of Temperature on the Growth of Vertically Aligned ZnO Nanowires in Wet Oxygen Environment" *Crystals* 13, no. 6: 876. <https://doi.org/10.3390/cryst13060876> Impact factor: 2.7, CiteScore – Q2
3. Saoussen Zannen, Mohammad Kanan, Mohamed Ben Hassen, Mohammed Khouj, Faouzi Sakli, Ahmad S. Barham, Faisal Alotaibi, Sameer Y. Jaradat and Imad Al-Shalout, *Polypropylene Composites Reinforced by Marine Posidonia Fiber Waste: Effect of Silane and Alkali treatment*. *Inf. Sci. Lett.* 12, No. 7, 2941-2949 (2023), <http://dx.doi.org/10.18576/isl/120721> CiteScore – Q2
4. Ahmad S. Barham, Sultan Akhtar, Mohamed ben Hassen, Sameer Y. Jaradat, Mohammed T. Khouj, Basem A. Abu-Izneid, Zaher Abusaq, Siraj Zahran, Salem Aljazzar, Mohammad Kanan, An evaluation of the electrochemical characteristics of 2-nitrobenzene-1,4-diamine organic monomer on gold or platinum thin film electrodes with a full-block random design in acidic environments, *International Journal of Electrochemical Science*, Volume 18, Issue 1, 2023, Pages 53-66, ISSN 1452-3981, <https://doi.org/10.1016/j.ijoes.2023.01.002>. Impact factor: 1.765, CiteScore – Q3
5. Wannassi, Bechir, Mohammad Kanan, Ichrak Ben Hariz, Ramiz Assaf, Zaher Abusaq, Mohamed Ben Hassen, Salem Aljazzar, Siraj Zahran, Mohammed T. Khouj, and Ahmad S. Barham. 2023. "Cotton Spinning Waste as a Microporous Activated Carbon: Application to Remove Sulfur Compounds in a Tunisian Refinery Company" *Sustainability* 15, no. 1: 654. <https://doi.org/10.3390/su15010654> Impact factor: 3.9, CiteScore – Q1
6. ElZein, Basma, Mutalifu Abulikemu, Ahmad S. Barham, Alia Al-Kilani, Mohammed I. Alkhatab, Samir M. Hamdan, Elhadj Dogheche, and Ghassan E. Jabbour. 2022. "In Situ Growth of PbS Nanoparticles without Organic Linker on ZnO Nanostructures via Successive Ionic Layer Adsorption and Reaction (SILAR)" *Coatings* 12, no. 10: 1486. <https://doi.org/10.3390/coatings12101486> Impact factor: 3.4, CiteScore – Q2
7. Mohammad Kanan, Bechir Wannassi, Ahmad S. Barham, Mohamed Ben Hassen, and Ramiz Assaf. 2022. "The Quality of Blended Cotton and Denim Waste Fibres: The Effect of Blend Ratio and Waste Category" *Fibers* 10, no. 9: 76. <https://doi.org/10.3390/fib10090076>, Impact factor: 3.9, CiteScore - Q1
8. Basma ElZein, Yingbang Yao, Ahmad S. Barham, Elhadj Dogheche and Ghassan E. Jabbour, 2020, Toward the Growth of Self-Catalyzed ZnO Nanowires Perpendicular to the Surface of Silicon and Glass Substrates, by Pulsed Laser Deposition, *Materials* 2020, Volume 13(19), 4427; <http://dx.doi.org/10.3390/ma13194427>

9. Ahmad S. Barham, and Mohammad A. Kanan, 2020, Effects of electrochemical parameters on electropolymerization of 2-nitro-p-phenylenediamine synthesised in acidic medium, *International Journal of Electrochemical Sciences*, Volume 15, Pages 5664 – 5681, <http://dx.doi.org/10.20964/2020.06.54>.
10. Ahmad S. Barham, 2018, S. Akhtar, M.I. Alkhatib, S.Y. Jaradat, B.M. Kennedy, B. El Zein, Fabrication of microelectrode ensembles on thin-film single electrodes: The degradation of electropolymerized benzene-1,3-diol films in caustic solutions. *Materials Express*, Volume 8, Pages 305–315. <https://doi.org/10.1166/mex.2018.1446>
11. Mohammad A. Kanan, and Ahmad S. Barham, 2020, Effects of electrochemical parameters on electropolymerization of 2-nitro-p-phenylenediamine in caustic and neutral solutions, *International Journal of Electrochemical Sciences*, Volume 15, Pages 4516–4533, <http://dx.doi.org/10.20964/2020.05.20>.
12. Ahmad S. Barham, 2018, Electropolymerization of Nitrophenol Isomers in Various Aqueous Electrolytic Solutions, *Int. J. of Electro. Sci.*, Volume 13, Pages 3660–3673, <http://dx.doi.org/10.20964/2018.04.15>
13. Ahmad S. Barham, Frederic Tewes, Anne Marie Healy, 2015, Moisture diffusion and permeability characteristics of hydroxypropylmethylcellulose and hard gelatin capsules, *International Journal of Pharmaceutics*, Volume 478, Issue 2, Pages 796–803. <https://doi.org/10.1016/j.ijpharm.2014.12.029>
14. Ahmad S. Barham, 2015, Influence of pH on the electropolymerisation of 2-aminophenol and 2-aminobenzyl alcohol, *Journal of New Materials for Electrochemical Systems*, Volume 18, Issue 1, Pages 037–041. <https://doi.org/10.14447/jnmes.v18i1.387>
15. Ahmad S. Barham, Brendan M. Kennedy, Vincent J. Cunnane, Muhammad A. Daous, 2014, The electrochemical polymerization of 1,2 dihydroxybenzene and 2-hydroxybenzyl alcohol prepared in different solutions media, *Electrochimica Acta*, Volume 147, Pages 19-24. <https://doi.org/10.1016/j.electacta.2014.09.104>
16. Ahmad S. Barham, 2015, Electrochemical studies of 3-aminophenol and 3-aminobenzyl Alcohol in Aqueous Solutions at Dissimilar pH Values, *International Journal of Electrochemical Sciences*, Volume 10, Pages 4751-4742. <http://www.electrochemsci.org/papers/vol10/100604742.pdf>
17. Ahmad S. Barham, 2015, Voltammetric Studies of 1,4-dihydroxybenzene and 4-hydroxybenzyl Alcohol Prepared in Aqueous Solutions at Various pH Values, *Journal of the Electrochemical Society*, Volume 162, Issue 6, Pages G36-G40. <http://dx.doi.org/10.1149/2.0041507jes>
18. Ahmad S. Barham, Brendan M. Kennedy, Vincent J. Cunnane, Muhammad A. Daous, 2014, A Study of the Electrochemical Oxidation and Polymerisation of 1,3 dihydroxybenzene and 3-hydroxybenzyl alcohol in Acidic, Basic and Neutral Aqueous Solutions, *International Journal of Electrochemical Sciences*, Volume 9, Pages 5389-5399. <http://www.electrochemsci.org/papers/vol9/91005389.pdf>
19. Lorraine M. Nolan, Lidia Tajber, Bernard F. McDonald, Ahmad S. Barham, Owen I. Corrigan and Anne Marie Healy. 2009 “Excipient-free Nanoporous Microparticles of Budesonide for Pulmonary Delivery”. *European Journal of Pharmaceutical Sciences*. Volume 37(5), Pages 593-602. <https://doi.org/10.1016/j.ejps.2009.05.007>
20. A. Shawqi Barham, Haque, M. K.; Roos, Y. H. and Hodnett, B. K. 2006 “Crystallization of Spray-Dried Lactose/Protein Mixtures in Humid Air”. *J. Crystal Growth*. V 295 (2), Pages 231-240. <https://doi.org/10.1016/j.jcrysgro.2006.08.006>
21. A. Shawqi Barham, AM. Elmonsef Omar, Yrjö H. Roos and B. K. Hodnett. 2006 “Evolution of Phases and Habit During the Crystallization of Freeze-dried Lactose/Salts Mixtures in Humid Air”. *Crystal Growth & Design*. Volume 6 (8), Pages 1975-1982. <https://doi.org/10.1021/cg060214d>
22. A. Shawqi Barham and B. Kieran Hodnett. 2005 “In Situ X-ray Diffraction Study of the Crystallization of Spray-Dried Lactose”. *Crystal Growth & Design*. Volume 5 (5), Pages 1965-1970. <https://doi.org/10.1021/cg050237c>
23. Isam M. Arafa, Mohammad M. Fares and Ahmad S. Barham. 2004 “Sol-gel preparation and properties of interpenetrating, encapsulating and blend silica-based urea-formaldehyde hybrid composite materials”. *European Polymer Journal*. Volume 40, Pages 1477-1487. <https://doi.org/10.1016/j.eurpolymj.2004.02.014>

Affiliations

- Member of the Scientific Council, University of Business and Technology (UBT), Jeddah, Kingdom of Saudi Arabia
- Member, The Electrochemical Society (ECS)
- Member, American Chemical Society (ACS)

Awards

- Dr. Abdullah Dahlan’s Award of the Best Researcher - University of Business and Technology-Jeddah-Saudi Arabia. 2014/2015.

Training & Workshop

EIS 2017- Theory and practice of Electrochemical Impedance Spectroscopy- University of BATH- UK (July 11, 2017 –July 14, 2017).

Peer Reviewer Training - Springer Nature (March 22, 2017)–UBT.

Author Training by Springer-Nature (March 20, 2017 - March 21, 2017)–UBT.

Higher Education Leadership (May 7 – 9, 2017)–UBT.

Certified International Project Manager (CIPM) (April 13 - 15, 2017)–UBT.

Innovative Pedagogy (Nov. 22, 2017)–UBT.

Learning and Teaching in Higher Education (Nov. 23, 2017)–UBT.

The importance and assessment of soft skills-workshop (Oct.25, 2018)–UBT.

Essays and Performance Tasks-workshop (Nov. 1, 2018)–UBT.

How to write Intended Learning outcomes & “Assessing ILOs”-workshop (November 8, 2018)–UBT.

Developing Multiple Choice Questions, Matching and Item Shell-workshop (Nov. 14-15, 2018)–UBT.

10th Gulf education conference and exhibition (Mega trends in education towers green economy) (Feb. 24-25, 2019)–UBT.

Industry 4.0 & Prototyping workshop; Thinking with your Hands-workshop (April 8, 2019)–UBT.

Simple and a practical guide to write your Course Learning Outcomes-workshop (Oct. 24, 2020)–UBT.