

Dr. Dalal A. Alshammari

Assistant Professor of Materials Engineering - Nanomaterials

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EDUCATION

- 2022 PhD in Materials Engineering - Nanomaterials**
Swansea University, United Kingdom
- 2018 Postgraduate MSc in Applied Analytical Science**
Swansea University, United Kingdom
- 2010 B.Sc in Chemistry**
Northern Border University

PROFESSIONAL DIPLOMAS & TRAINING

- 2024 Diploma in Administrative Leadership** - Mastery Online Training Solutions (50 training hours)
- 2025 Professional Diploma in Academic Supervision and Research Guidance for Students** - Scientific Events Gate, Malaysia (40 training hours)

ACADEMIC RANK

- 2023 - Present Assistant Professor**
Department of Chemistry, College of Science, University of Hafr Al Batin
- 2012 - 2015 Teaching Assistant**
Department of Chemistry, College of Science, University of Hafr Al Batin

POSITIONS & EMPLOYMENT

Administrative & Center Leadership

- Director of the Engineering and Technology Research Center, University of Hafr Al Batin (2026 - Present)
- Director of the International Conference on Sustainable Energy and Empowering the Future (SEEF 2026), University of Hafr Al Batin (2025 - 2026)
- Supervisor of the Academic Follow-up Unit at the Vice Rectorate for Academic Affairs (2024 - 2025)
- Vice of the Preparatory Year (2013 - 2015)

COMMITTEE & BOARD MEMBERSHIPS

Committee / Role	Level	Period
Member, Scientific Committee and Reviewer, International Conference on Sustainable Energy and Empowering the Future (SEEF 2026), University of Hafr Al Batin	University	2025 - 2026
Member, Permanent Committee for Research Chairs, University of Hafr Al Batin	University	2026 - Present
Member, Permanent Committee for Training and Scholarship, University of Hafr Al Batin	University	2024 - Present
Member, Research Ethics Committee, University of Hafr Al Batin	University	2026 - Present
Member, Executive Committee for the Promotion of Scientific Integrity, University of Hafr Al Batin	University	2025 - 2026
Member, Executive Committee for Research and Innovation, and Reviewer of Research Proposals from the Colleges of Engineering and Science under the Research Project Funding Program for 2025, University of Hafr Al Batin	University	2024 - 2025
University Liaison Representative between University of Hafr Al Batin and Princess Nourah bint Abdulrahman University	University	2025 - 2026
Member, Working Team for Activating the Agreement with the General Authority of Civil Aviation (GACA), University of Hafr Al Batin	University	2026 - Present
Member, Digital Transformation Working Committee, University of Hafr Al Batin	University	2026 - Present
Member, Preparing the Annual Report Committee, Vice Rectorate for Academic Affairs,	University	2024

University of Hafr Al Batin		
Member, Reviewing and Preparing Policies Committee, Vice Rectorate for Academic Affairs, University of Hafr Al Batin	University	2025
Member, Academic Committee, College of Science, University of Hafr Al Batin	College	2025 - 2026
Member, Examination Committee, College of Science, University of Hafr Al Batin	College	2025 - 2026
Member, Behavior Regulation Committee, College of Science, University of Hafr Al Batin	College	2024 - 2025
Member, Scientific Research Committee, Chemistry Department, College of Science, University of Hafr Al Batin	Department	2024 - 2025
Chair, Plans and Programs Committee, Chemistry Department, College of Science, University of Hafr Al Batin	Department	2023 - 2024
Chair, Alumni Committee, Chemistry Department, College of Science, University of Hafr Al Batin	Department	2023 - 2025
Member, Professional and Academic Development Committee for Faculty Members, Chemistry Department, College of Science, University of Hafr Al Batin	Department	2024 - 2025
Member, Plans and Programs Committee, Chemistry Department, College of Science, University of Hafr Al Batin	Department	2022 - 2023
Member, Scholarship Committee, Chemistry Department, College of Science, University of Hafr Al Batin	Department	2022 - 2023
Member, Examination Evaluation Committee, Chemistry Department, College of Science, University of Hafr Al Batin	Department	2022 - 2023
Chair, Engineering and Technology Research Center Council, University of Hafr Al Batin	Board	2026 - Present
Member, Engineering and Technology Research Center Council, University of Hafr Al Batin	Board	2025 - 2026
Member, Chemistry Department Council, College of Science, University of Hafr Al Batin	Board	2023 - Present

ACADEMIC EXPERIENCE

• Materials Chemistry	• Industrial Catalysis
• Advanced Instrumental Analysis	• Environmental Chemistry
• Chemistry Research	• Chemistry Seminar
• Principles of Safety in Laboratories	• Analytical Chemistry Lab
• General Chemistry Lab	

ACHIEVEMENTS & PROFESSIONAL MEMBERSHIPS

- Certificate of Congratulations from the Saudi Arabian Cultural Bureau at the Saudi Embassy in London for Academic and Research Excellence (2020).
- Scientific Stay at the King Abdulaziz City for Science and Technology (KACST) (2020).
- Poster Presenter, 5th Global Conference on Polymers, Plastics & Composites (PPC 2025), Prague, Czech Republic (25-26 June 2025).
- Attendee, First Saudi Forum for Scientific Councils, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia (11 September 2025).
- Attendee, JISR 3 Forum, organized by the General Authority for Defense Development (GADD), Riyadh, Saudi Arabia (19 May 2026).
- Member, Saudi Council of Engineers (2025 - Present).
- Member, Jazan Society for Industrial Chemistry, Saudi Arabia (2024 - Present).
- Member, Afaq Energy Association, Saudi Arabia (2026 - Present).
- Member, ChemStage, Saudi Arabia (2024 - Present).

ACADEMIC & COMMUNITY SERVICE

- Member of the University Delegation during the Official Visit to His Royal Highness Prince Saud bin Nayef bin Abdulaziz Al Saud, Governor of the Eastern Province, to Present the SEEF 2026 Conference Report (31 March 2026).
- Academic Advisor for Chemistry Department students, College of Science, University of Hafr Al Batin.
- Course Coordinator for Industrial Catalysis, Environmental Chemistry, Chemistry Seminar, and Principles of Laboratory Safety.
- Co-organizer and Presenter, Research Ambassadors Program 2026, University of Hafr Al Batin (July 2026).
- Workshop Presenter, "Safe Handling of Radiation and Radioactive Materials," College of Science, University of Hafr Al Batin (28 April 2026).

- Participation in Environment Week 2025, College of Science, University of Hafr Al Batin (2025).
- Participation in the Cultural Exhibition, College of Science, University of Hafr Al Batin (2024).
- Contribution to the activation of World Quality Day, College of Science, University of Hafr Al Batin (2025).
- Participation in extracurricular activities at the Chemistry Department and College of Science, University of Hafr Al Batin.
- Volunteer in community service activities, Taraof Association for Orphan Care, Hafr Al Batin (April 2026).
- Volunteer in Environment Week activities, Environmental Protection Association in Hafr Al Batin (2024).
- Peer Reviewer for scientific manuscripts in Engineered Science and ES Materials & Manufacturing journals.
- Community Volunteer - 136 documented volunteer hours through the National Platform for Volunteer Work, Saudi Arabia (2026 - Present).

RESEARCH FUNDING & GRANTS

Institutional Funding Program, University of Hafr Al Batin (2025 - 2026) | Project No. S-0101-1446

Research Project: New Strategy to Methane Reforming to Hydrogen: Enhancing Efficiency and Reducing Carbon

RESEARCH PROFILE & EXPERTISE

Dr. Dalal A. Alshammari is an Assistant Professor of Materials Engineering and currently serves as the Director of the Engineering and Technology Research Center at the University of Hafr Al Batin, Saudi Arabia. Her research focuses on the design, synthesis, characterization, and engineering of advanced functional nanomaterials for sustainable energy, environmental remediation, and next-generation materials applications.

Core Expertise: Nanotechnology, nanomaterials, electrocatalysis, photocatalysis, hydrogen production, water splitting, supercapacitors, rechargeable batteries, ceramic materials, and advanced energy storage systems.

Global Collaborations: Established extensive international research collaborations with leading researchers and institutions across Asia, Europe, and the Middle East, contributing to multidisciplinary projects in materials science, renewable energy, environmental technologies, and artificial intelligence-assisted materials engineering.

Publication Impact: Published more than 40 SCI-indexed research articles in internationally recognized journals, including Q1 and high-impact journals in materials science, energy, nanotechnology, catalysis, and environmental applications.

SELECTED SCIENTIFIC PUBLICATIONS

1. **Dalal A. Alshammari.** (2024). An insight into Cu/Gd co-doping and MWCNTs modification on SrFe12O19 for effective removal of industrial effluents. *Ionics*, Published online 25 August 2024.
2. **Dalal A Alshammari.** (2025). Synthesis of Ag and Gd Co-doped LaCoO3: Tuning the optical bandgap through quantum confinement effect for outstanding photocatalytic activity. *Ceramics International*, 51(2025) 3595-3606.
3. **Dalal A. Alshammari**, Mustabshira Ikram, Amal BaQais, Salamat Ullah Khan Niazi, Amna Irshad, Mohammed A. Amin, Manzar Sohail, Muhammad Farooq Warsi. (2024). Synthesis and supercapacitor application studies of aluminum-lanthanum co-Doped bismuth oxide composite with N-doped reduced graphene oxide. *Materials Science and Engineering: B*, 2024, 310, 117720.
4. **Dalal A. Alshammari**, Hamid Ahmed, Kenit Acharya, Fawaz S. Alharbi, Maryam El Marouani, Naglaa A. El-Naggar, Miloud Souiyah, Rawesh Kumar, Ahmed S. Al-Fatesh. (2025). The promotional role of Gd-promotor over Ni-catalyst stabilized over KIT-6 towards dry reforming of methane reaction. *International Journal of Hydrogen Energy*, 186 (2025) 151934.
5. **Dalal A. Alshammari**, Saba A. Aladeemy, Rehab M. Ali, Maryam El Marouani, Naglaa A. El-Naggar, Fawaz S. Alharbi, Abdullah A. Alsayed, Ahmed A. Ibrahim, Ahmed S. Al-Fatesh. (2026). A comparative study of SiO2, Al2O3, and mixed SiO2-Al2O3-supported nickel catalysts for dry reforming of methane: effects of calcination temperature on catalytic performance. *Journal of Materials Science*, 61(2), 834-853.
6. **Dalal A. Alshammari**, Ahmed A. Ibrahim, Fekri Abdurageb Ahmed Ali, Sara E. Abdelhafez, Maryam El Marouani, Naglaa A. El-Naggar, Fawaz S. Alharbi, Abdullah A. Alsayed, Ahmed S. Al-Fatesh. (2026). Governing the Efficiency of Ni/SiO2-Al2O3 Catalyst for Methane Dry Reforming via Strategic Calcination Conditions. *Catalysts*, 16(2), 118.
7. Xiaofeng Li, Huaming Yu, **Dalal A. Alshammari**, Siyu Tian, Gen Chen, Kai Xi, Hamdy Khamees Thabet, Bingan Lu, Zeinhom M. El-Bahy, Yangyang Liu, Yuejiao Chen, Jiang Zhou. (2026). Regulation of Proton Vehicle Migration for Synergetic Interfacial Stability Enables Long-Lasting Ah-Level Zinc-Ion Batteries. *Advanced Materials*, 38(6), e16427.
8. Yanfen Liu, Xiaotan Zhang, Shaaban M. Shaaban, Zhicheng Li, **Dalal A. Alshammari**, Xieyu Xu, Yan Tang, Zeinhom M. El-Bahy, Bingan Lu, Yangyang Liu, and Jiang Zhou. (2025). Postpone Interfacial Impoverishment of Zn-Ions via Neodymium-Based Conversion Films for Stable Zn Metal Anodes. *Advanced Energy Materials*, 2025, 2500962.

9. Yifan Zhou, Yicai Pan, Yongqiang Yang, Taghreed F. Altamimi, Yunpeng Zhong, **Dalal A. Alshammari**, Zeinhom M. El-Bahy, Shuquan Liang, Jiang Zhou, Xinxin Cao. (2026). Electrically Insulating Rigid Multi-Channel Electrolyte Container for Customizable Electron Transfer in Zn-Halogen Batteries. *Nano-Micro Letters*, 18, 168.
10. Siyu Zhang, Yangyang Liu, Gen Chen, Zeinhom M. El-Bahy, **Dalal A. Alshammari**, Mohamed H. Helal, Jiang Zhou, Junwei Han. (2025). Adaptive Localized Ectopic Structure Enhances Regeneration of Spent Lithium-Ion Battery Cathodes. *Advanced Materials*, Early View, e13547.
11. Shouyu Qu, Yangyang Liu, Gen Chen, Zeinhom M. El-Bahy, **Dalal A. Alshammari**, Mohamed H. Helal, Junwei Han, Jiang Zhou. (2025). Homogenization-confined-repair regeneration of spent LiFePO₄ cathodes via tunable pre-oxidization and microencapsulation strategy. *InfoMat*, 07 September 2025, e70069.
12. Mingxiang Liu, Han Wu, Yingjie Wang, Juanna Ren, **Dalal A. Alshammari**, Hassan E. Abd Elsalam, Islam H. El Azab, Hassan Algadi, Peitao Xie, Yao Liu. (2023). Flexible cementite/ferroferric oxide/silicon dioxide/carbon nanofibers composite membrane with low-frequency dispersion weakly negative permittivity. *Advanced Composites and Hybrid Materials*, 6 (2023) 217.
13. Bingyao Zhang, Xinze Cai, Siyu Tian, Jiahui Liang, Mohamed H. Helal, **Dalal A. Alshammari**, Zeinhom M. El-Bahy, Bingan Lu, Jiangqi Zhao, Jiang Zhou. (2025). Zwitterionic Hydrogels Endow Zinc-Ion Micro-Batteries with Superior Durability for Electrophysiological Monitoring. *Advanced Energy Materials*, 15 (40) 2025, e03986.
14. Zhiwei Hu, Tuo Li, Yong Zheng, Shengxi Chen, Tong Wan, Hamdy Khamees Thabet, Zeinhom M. El-Bahy, **Dalal A. Alshammari**, Hanhui Lei, Liqiang Chu, Sun Sun, Yaohui Guo, Yizhou Yang, Terence Xiaoteng Liu, Dapeng Cui, Zhanhu Guo, Huige Wei. (2025). Li/Al-LDH Reinforced Polyacrylamide/Xanthan Gum Semi-Interpenetrating Network Nano-Conductive Hydrogels for Stress Sensing and Wearable Device Applications. *Advanced Materials*, 30 September 2025, Early View, e11903.
15. Jiahui Lin, Mengman Weng, Yongshuang Xiao, Shengdong Liu, Qing Xiang, Hassan Algadi, **Dalal A. Alshammari**, Ahmed M. Fallatah, Zheng Zhao, Yonggang Min, Mohamed M. Ibrahim, Jintao Huang. (2025). Conductive poly (vinyl alcohol)/berberine/AgNWs gellable composite film with antibacterial activity for wound dressing and acute massive hemorrhage warning. *Advanced Composites and Hybrid Materials*, 8 (2025) 36.
16. Simiao Chen, Li Zhang, **Dalal A. Alshammari**, Mahmoud M. Hessien, Wei Yu, Liansheng Cui, Juanna Ren, Zeinhom M. El-Bahy, Zhanhu Guo. (2025). Z-scheme Ag₂O/ZnO heterostructure on carbon fibers for efficient photocatalysis of tetracycline. *Separation and Purification Technology*, 345 (2025), 129414.
17. Shiding Zhang, Yuhua Wang, Gaber A. M. Mersal, A. Alhadhrami, **Dalal A Alshammari**, Yitong Wang, Hassan Algadi, Haixiang Song. (2024). Enhanced photocatalytic CO₂ reduction via MXene synergism: constructing an efficient heterojunction structure of g-C₃N₄/Nb₂C/CsPbBr₃. *Advanced Composites and Hybrid Materials*, 7 (2024)
18. Simiao Chen, Li Zhang, Saad Melhi, **Dalal A. Alshammari**, Mohammed A. Amin, Li Dai, Shijie Li, Wei Yu, Liansheng Cui. (2024). Photocatalytic degradation of Toluene by three-dimensional monolithic Titanium Dioxide / Cuprous Oxide foams with Z-schemed Heterojunction. *Advanced Composites and Hybrid Materials*, 7 (2024) 250.
19. Yong Shen, Guojie Li, Yajie Cheng, Yahong Li, A. Alhadhrami, Ahmed M. Fallatah, **Dalal A. Alshammari**, Bing Zhou, Yuezhao Feng, Chuntai Liu. (2024). Lightweight double-layer structured ANF/MXene aerogel film with electromagnetic interference shielding and dynamic infrared camouflage. *Advanced Composites and Hybrid Materials*, 2024, 7(5), 175.
20. Saima Batool, Muhammad Idrees, **Dalal A. Alshammari**, A. Alhadhrami, Gaber A. M. Mersal, Deliang Chen, Junguo Xu. (2024). Poly(ethylenimine) modified Punica granatum derived biochar for antibiotic removal: mechanistic insights. *Advanced Composites and Hybrid Materials*, 2024, 7(5), 170.
21. Xin Wang, Xin Song, Hala M. Abo-Dief, **Dalal A Alshammari**, Vignesh Murugadoss, Zhexenbek Toktarbay, Liguang Yang, Zhongyuan Zhou. (2024). Integration of element codoping and electron-donor functional groups into metal-organic framework to improve photoelectrochemical water oxidation of hematite photoanode. *Advanced Composites and Hybrid Materials*, 2024, 7(5), 161.
22. Xiaojiao Han, Yifei Feng, **Dalal A Alshammari**, Hua Yuan, Wei Du, Xiao Liu, Juanna Ren, Marwan Shalash, Salah M. El-Bahy, Fuyi Jiang, Chuanxin Hou, Xiaoyu Zhang. (2024). Manganous oxide-cobalt@carbon microcubes with a hierarchical mesoporous structure for high performance lithium storage. *Advanced Composites and Hybrid Materials*, 7, 2024, 116.
23. Longzhi Tong, Limin Zhang, Saad Melhi, **Dalal A. Alshammari**, Mohamed Kallel, Zhichao Zheng, Jie Yang, Chao Wang. (2024). Electrochemical reduction of CO₂ by graphitized carbon nitride composite anion exchange membranes: potential for high CO selectivity. *Advanced Composites and Hybrid Materials*, 7, 2024, 80.
24. **Dalal A Alshammari**, Hala H Abd El-Gawad, Muhammad Abdullah, Zeinhom M El-Bahy, Huda A Alzahrani, MI Sayyed, Daria Tishkevich, Alex Trukhanov. (2024). CuTe supported on graphitic carbon nitride nanocomposite as an effective electrocatalyst for oxidation of water in basic media. *Journal of Electroanalytical Chemistry*, 953 (2024)
25. Hala M. Abo-Dief, Bushra Shaheen, Sonia Zulfiqar, Nahid A. Osman, **Dalal A. Alshammari**, Muhammad Farooq Warsi, Eric W. Cochran. (2024). Enhanced photocatalytic degradation of harmful pollutants by MoO₃/SiO₂/MXene nanocomposite powder catalyst. *Ceramics International*, Available online 14 August 2024.