

Dr. Abdussalam K. Qaroush

Associate Professor - Organic & Polymer Chemistry

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Researcher ID: I-7175-2017

National Researcher Number: 2001441



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- **Member of the Sustainable Development Goals (SDGs) committee** at UJ (2023-up to now).
 - **Green Chemistry National Steering Committee** (2023-Up to now).
 - **Member of the Nanotechnology Council** (2021-2023).
 - (30/01/2021- Up to now) **Associate Professor**, Chemistry Department, The University of Jordan (UJ).
 - (12/03/2018- 29/01/2021) **Assistant Professor**, Chemistry Department, The University of Jordan (UJ).
 - (29/01/2017- 11/03/2018), **Lecturer**, Chemistry Department, The University of Jordan (UJ).
 - (14/02-1/09/2016). **Part-time lecturer**, German Jordanian University (GJU).
 - (1/08/2015-Up to now). **Visiting Assistant Researcher**, Chemistry Department, TUM (JoSTA Initiative)
One of 30 Jordanian scientists and technologists abroad (JoSTA, a national priority set by the premiership) that was initiated in August, 2015. The call was organized by the Jordanian Higher council of Science and Technology (HCST). Technology transfer upon working with Jordanian peers is a must to ensure CO₂-based end product(s) in the local market.
(Top 100 Universities, 54 QS ranking (2022), 50 Shanghai ranking (2022)).
 - (12/08/2015-31/07/2014). **Researcher**, Chemistry Department, TUM.
 - (01/07/2009-11/08/2014). **PhD Candidate** (Fellowship), Chemistry Department, TUM, Germany.
 - (03/08/ 2008 – 30/06/2009). **Chemistry Tutor**, Islamic Educational College (IGCSE-GCE System).
 - (09/09/2007 – 02/08/ 2008). **Teaching Assistant**, Chemistry Department, Hashemite University.
 - (18/05/2007 – 08/09/2007). **Research Assistant**, Chemistry Department, Hashemite University.
 - (01/09/2004-/17/05/2007). **M. Sc. in Chemistry** (Fellowship).
 - (01/10/2000-30/06/2004). **B. Sc. in Chemistry**.

Education

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- **PhD in Macromolecular Chemistry (2009-2014) (Supervised by: Prof. Dr. Bernhard Rieger)**

Technische Universität München (TUM), Munich, Germany.

PhD candidate: Dissertation topic “CO₂ Activation Using Nitrogen Bearing Donors: Capturing of CO₂ using [n]-oligoureas as Novel Green Sorbents”. It deals with different approaches to capture CO₂ by task-specific ionic liquids (TSILs) and their polymeric correspondents (PILs), as well as a newly invented material, viz. [n]-oligoureas, as solid sorbents, using propylene carbonate as a green carbonylating agent.

- **Master of Science, Chemistry (2004-2007) (Supervised by Prof. Dr. Adnan Abu-Surrah)**

Hashemite University, Zarqa, Jordan.

M.Sc. Chemistry: Thesis entitled "Synthesis and Characterization of Some Iron(II) and Cobalt(II) Complexes Containing 2,6-Bis(imino)pyridine- and Salen-based Tridentate Ligands: Evaluation of the Complexes as Catalysts for Polymerization of Acrylates".

- **Bachelor of Science, Chemistry (2000-2004)**

Hashemite University, Zarqa, Jordan.

Software Skills

- Zoom®, Microsoft Teams®, Microsoft office®, Mestronova®, Chemoffice®-Ultra 13.0.2.3021, Corel Photo-paint X6 16.3.0.1114, in addition to actively supervising/manipulating software packages as in Mettler-Toledo MMIR45m RB04-50 provided with pressure vessels (50 ml-autoclave), CEM-discover (S-class) microwave reactor, along with different analytics/instrumentation such as ATR-FTIR, EA, TGA, DSC, GPC, and NMR.
- **Arabic** (mother tongue), **English** (Advanced, fluency in both written and spoken English), and **German** (Basic level, A1). Target-oriented, team-player, research developer, innovative, knowledge of Schlenck techniques, glove box, autoclave manipulation. **Hobbies:** Swimming, football, solving puzzles, and cooking.

Languages & Soft skills

Topical Advisory Panel for the journal "Polymers" (MDPI, Switzerland, Q1 Journal, Clarivate Analytics, IF: 5.00), (January 2021-Up to now).

Awards & Prizes

- **Top 100 researchers at UJ, November 2021.**
- Dr.-Ing. Leonhard-Lorenz-foundation's research grant-2014.
- German Chemical Society (**GDCh**) Travelling Grant to Gordon Research Conference-Green Chemistry, Hong Kong, China, 2014.
- Technical University of Munich-Graduate School (**TUM-GS**) Travelling Grant to 243rd ACS meeting, Philadelphia, USA, 2012.
- **Best Poster Presentation**, (European-Asian Chemical Conference of Chemical Sciences, Eu-AsC₂S-11, Dead sea, Jordan, 2010.
- A Fully Funded PhD fellowship due to a (**TUM/KAUST**) Joint Venture.
- **Best Winning M. Sc. Lecture**, "1st Jordanian Chemical Symposium for M. Sc. and B. Sc. Students" Moutah University, Al-Karak, Jordan, 2006.
- M. Sc. fellowship, Hashemite University.

Research Interest

- **Carbon Capture and Sequestration and Utilization (CCS & CCU)**

Synthesis of novel materials for the capturing of CO₂. I was primarily involved in the development of 'Green Sorbents' for the capture of CO₂. Syntheses of these materials were following Green Chemistry protocols. Interest is based on the utilization of cheap resources to make efficient sorbents with best working performances at ambient conditions.

- **Homogeneous Catalysis & Polymer Synthesis (Organic Chemistry, 8+ modules)**

Synthesis of biodegradable plastics starting from CO₂ is a must that can be used in plastic bags or packaging industries. Synthesis of novel materials all the way through coordination polymerization, and controlled radical polymerization. Furthermore, preparation of **organic monomers** starting from commercially available renewable resources. In addition, development of synthetic protocols under mild reaction conditions.

- **Molecular Catalysis & Activation of Small Molecules**

Synthesis and development of useful inexpensive, commercially available-, economically viable starting materials *e.g.* CO₂, that can be applied in organic synthesis followed by finding new applications, in multidisciplinary fields such as polymerization, Catalysis, Green chemistry, and Ionic liquids.

- **Organometallic Bio- & Inorganic Chemistry**

Design, synthesis, and characterization of transition metal-based complexes ‘know-hows’ that can be applied as catalysts for polymerization reactions and organic synthesis, or even testing its bioactivity. Medicinal applications of the synthesized complexes as antitumor agents, and their utilization in medicinal chemistry.

**Internships
& Training
Courses**

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- ***Sustainable Development Through Effective Knowledge Sharing***, Center for international Migration (CIM), 18 Hrs, 5th February – 6th February, 2017, Jordan Valley Marriott Hotel, Jordan.
 - ***University Industry Collaboration Workshop -Cooperation Opportunities and Challenges-***, German Jordanian University, 1st, June, 2016, Al Mushaqqar, Jordan.
 - ***E-Camp! Enterprising Knowledge***, “Discover your entrepreneurial opportunities – develop market perspectives for your research!” +50 Hrs, 25th February – 2nd March, 2013, TUM Entrepreneurship Research Institute, TUM, Germany.
 - ***Giving Academic Talks***, 10 Hrs, Carl V. Linde Academy/Central institute of TUM, TUM, Germany.
 - ***Responsible Future Life and Career Plans***, 14 Hrs, 14th TUM-GS ‘Kick-off Seminar’, 13th-16th, November, 2012, Frauenchiemsee, Germany.
 - ***Surviving Complex Projects***, 14 Hrs, Carl V. Linde Academy/Central institute of TUM, TUM, Germany.
 - ***Presenting Convincingly and Self-Confidently***, 16 Hrs, Carl V. Linde Academy/Central institute of TUM, TUM, Germany.
 - ***Research Internship to KAUST Catalysis Center (KCC) which Spanned from May, 2nd - June, 25th/2011***, Thuwal, KSA. Prof. J.-M. Basset.
 - ***Introduction to IR Spectroscopy***, +30 Hrs, February, 28th – March, 18th /2011, TUM, Germany.
 - ***British Council Trainer Training***, 30 Hrs, Islamic Educational College, Jordan.
 - ***Education and Evaluation Technology***, 18 Hrs, Hashemite University, Jordan.
 - ***E-Learning: Lectora®***, ***Blackboard®***, ***Tegrity®***, ***Elluminate®***, 30 Hrs, Hashemite University, Jordan.
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Professional Membership

- Jordanian Chemical Society (**JCS**).
 - American Chemical Society (**ACS**).
 - Royal Society of Chemistry (**RSC**).
 - CO₂Chem Network.
 - Association of Jordanian Graduates from German Universities (**JADU**).
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UJ, Jordan

- Experimental Organic and Industrial Polymer Chemistry laboratory (0363355)
 - Industrial Polymers (0363354)
 - Research Methods (0333791, For M.Sc. Students)
 - Polymer Chemistry (0333452)
 - Organic Chemistry (I)(0333231)
 - Organic Chemistry for non-major students (0333233)
 - Systematic Identification of Organic Compounds (0303336)
 - Experimental Organic Chemistry (major (0303236), non-major (0303239))
 - General Chemistry (0303101)
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Courses Taught

GJU, Jordan

- Analytical Chemistry, General Chemistry (0303101)
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HU, Jordan

- General Chemistry 101 (Laboratory). General Chemistry 102 (Laboratory).
 - Chemistry for Engineers (Laboratory).
 - Analytical Chemistry (Laboratory).
 - Instrumental Methods of Analysis (Laboratory). Inorganic chemistry (Laboratory).
 - Organic chemistry (Laboratory). & Systematic Identification of Organic compounds (Laboratory).
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Funded Projects

Accepted/Pending Funds

- **Principal Investigator**, Exploiting the Hierarchy of nitrogen-based monomers for CO₂ fixation. **Abdul Hameed Shoman Scientific Research Support Fund** (*Pending*).
 - **Principal Investigator**, Nano Organocatalysts as Valuable Tools for CO₂ Utilization for the Production of Cyclic Carbonates. **The University of Jordan** (*Accepted*).
 - **Principal Investigator**, **Scientific Research and Innovation Support Fund: New Methodologies for Chemical Bonding Exploiting CO₂ Chemistry** (*Completed*)
 - **Co-Investigator**, **The Hashemite University: An Efficient Nitrogen-based Green Sorbent for CO₂ Capturing and Activation.** (*Completed*).
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Since 2016, I have served as an international peer-reviewer in the following **journals** (publishers): **Energy & Fuel (ACS)**, **Fuel**, **Carbohydrate Polymers**, **Arabian Journal of Chemistry**, **Green Energy & Environment**, **Journal of Environmental Chemical Engineering (Elsevier)**, **Journal of Coordination Chemistry (Taylor & Francis)**, **ChemSusChem**, **Chemistry Select**, **ChemCatChem (Wiley)**, **Polymers (Topic Editor)**, **Applied Sciences**, **Materials**, **Molecules (MDPI)** and **Green Chemistry (RSC)**.

M. Sc. Students Supervision:

1. **Ahmad AlAmer**, *The Hashemite University*, **Co-supervisor**, M. Sc. thesis: Catalytic and Mechanistic of Cyclic Carbonate Synthesis Catalyzed by Ionic liquid Precursors/Transition Metals (Expected Graduation: Fall, **2024**).
 2. **Yazan Falahat**, *The Hashemite University*, **Co-supervisor**, M. Sc. thesis: Synthesis and Characterization of Imine-based, Double-Tailed Surfactants in Langmuir and Langmuir-Blodgett Films (Expected Graduation: Fall, **2024**).
 3. **Dina Foudeh**, *The University of Jordan*, M. Sc. thesis: The Synthesis and Interfacial Characterization of Hydrogenated and Perfluorinated Nicotinate Ester Gemini surfactants , (**Graduated, 2023**).
 4. **Malak H. Al-Anati**, *The University of Jordan*, M. Sc. thesis: CO₂ Schiff Base-based Scaffolds for the Activation of Carbon Dioxide, (**Graduated, 2023**).
 5. **Ayham A. Al-Adwan**, Multi-Active Sites Iminium-Based Motifs for CO₂ Utilization into Cyclic Carbonates, (**Graduated, 2023**).
 6. **Ahmad Abo-Shonnar**, *The Hashemite University*, **Co-supervisor**, Investigation of Cationic-based Gemini Surfactants at Air-Water and Air-Solid Interfaces, (**Graduated, 2022**).
 7. **Amneh H. AlSmadi**, *The Hashemite University*, **Co-supervisor**, Utilization of CO₂/CS₂: Synthesis of Heterocyclic Compounds using Mukaiyama Reagent, (**Graduated, 2022**).
 8. **Areej K. Hassan**, *The University of Jordan*, M. Sc. thesis: CO₂ Fixation into Cyclic Carbonates Catalyzed by Single-Site Ionic Organocatalysts, (**Graduated, 2022**).
 9. **Ahed W. Al-Sayyed**, *The University of Jordan*, M. Sc. thesis: Functionalized Urea Compounds for CO₂ Capturing, *M. Sc. candidate*. (**Graduated, 2022**).
 10. **Maryam I. Melhem**, *The University of Jordan*, M. Sc. thesis: Synthesis of Imidazolium-based Poly(Ionic Liquids) for the Capturing of CO₂ (**Graduated, 2020**).
 11. **Farah M. Mustafa**, *The Hashemite University*, **Co-supervisor**, M. Sc. thesis: Investigating amine-based scaffolds for CO₂ capturing (**Graduated, 2019**).
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Publications:

1. **A. K. Qaroush,*** A. F. Eftaiha, K. I. Assaf F. M. Al-Qaisi, Green biobased sorbents for CO₂ capture, *Current Opinion in Green and Sustainable Chemistry*, **2024**, 47, 100903. (ISI Journal)
2. A. A. Aladwan, **A. K. Qaroush,*** A. F. Eftaiha, S. B. Hammad, F. M. Al-Qaisi, K. I. Assaf and T. Repo. POPs to COFs by Post-modification: CO₂ Chemisorption and Dissolution, *Organic & Biomolecular Chemistry*, **2024**, 22, 2256-2264. (ISI Journal)
3. F. M. Al-Qaisi, **A. K. Qaroush,*** K. I. Assaf, A. F. Eftaiha, I. K. Okashah, A. H. Smadi, F. Alsoubani, A. S. Barham, T. Repo. Sustainable synthesis of cyclic carbonates from CO₂ using zinc adeninium bromide as a biorenewable catalyst. *Inorganica Chimica Acta*, **2023**, 557, 121716. (ISI Journal)
4. **A. K. Qaroush,*** A. F. Eftaiha,* F. M. Al-Qaisi, K. I. Assaf, S. B. Hammad, M. H. Al-Anati, E. S. Radwan and F. F. Awwadi. Newly synthesized imidazolium precursors for CO₂ utilization and sequestration: aprotic versus protic salts. *Catal. Sci. Technol.*, **2023**, 13 (11), 3245–3257. (ISI Journal)
5. F. M. Al-Qaisi, **A. K. Qaroush,*** I. K. Okashah, A. F. Eftaiha, P. Vasko, F. Alsoubani, and T. Repo. The Use of Sustainable Transition Metals for the Cycloaddition of Epoxides and CO₂ under Mild Reaction Conditions. *Eur. J. Inorg. Chem.*, **2023**, 26 (6), e202200357, 1-7. (ISI Journal)
6. **A. K. Qaroush,*** A. W. Alsayyed, A. F. Eftaiha,* F. M. Al-Qaisi, K. I. Assaf, A. Y. Yousef, and L. H. Idwaidar. Unconventional CO₂-Binding and Catalytic Activity of Urea-Derived Histidines. *ACS Sustainable Chem. Eng.*, **2022**, 10 (48), 15813-15823. (Privileged with a front cover page). (ISI Journal)
7. **A. K. Qaroush,*** A. W. Alsayyed, A. F. Eftaiha,* F. M. Al-Qaisi, and B. A. Salameh, Green Microwave-Assisted Synthesis of Cyclic/Acyclic Ureas from Propylene Carbonate. *ChemistrySelect*, **2022**, 7(20), e202200478, 1-7. (ISI Journal)
8. A. F. Eftaiha,* **A. K. Qaroush,*** A. S. Abo-shunnar, S. B. Hammad, K. I. Assaf, F. M. Al-Qaisi, and M. F. Paige. Interfacial Behavior of Modified Nicotinic Acid as Conventional/Gemini Surfactants. *Langmuir* **2022**, 38 (28), 8524-8533. (ISI Journal)
9. A. F. Eftaiha, **A. K. Qaroush,*** A. K. Hasan, W. Helal, and F. M. Al-Qaisi. CO₂ fixation into cyclic carbonates catalyzed by single-site aprotic organocatalysts. *React. Chem. Eng.*, **2022**, 7(8), 1807–1817. (ISI Journal)
10. **A. K. Qaroush,*** A. F. Eftaiha,* A. H. Smadi, K. I. Assaf, F. M. Al-Qaisi, and F. Alsoubani. CS₂/CO₂ Utilization Using Mukaiyama Reagent as a (Thio)carbonylating Promoter: A Proof-of-Concept Study. *ACS Omega*, **2022**, 7 (26), 22511-22521. (ISI Journal)
11. **A. K. Qaroush,*** M. I. Saleh, H. M. Alsyouri, M. A. Abu-Daibes, A. F. Eftaiha, K. I. Assaf, R. Abu-Zaid, A. S. Abu-Surrah, C. Troll and B. Rieger. *In situ* activation of green sorbents for CO₂ capture upon end group backbiting, *Phys. Chem. Chem. Phys.*, **2022**, 24 (20), 12293–12299. (ISI Journal)
12. **A. K. Qaroush,*** Areej K. Hasan, Suhad B. Hammad, F. M. Al-Qaisi, K. I. Assaf, F. Alsoubani, and A. F. Eftaiha, Mechanistic insights on CO₂ utilization using sustainable catalysis, *New Journal of Chemistry*, **2021**, 45 (47), 22280-22288. (ISI Journal)

13. K. I. Assaf, **A. K. Qaroush**,* I. K. Okashah, F. M. Al-Qaisi, F. Alsoubani and A. F. Eftaiha. Activation of β -diketones for CO₂ Capture and Utilization, *Reaction Chemistry & Engineering*, **2021**, 6 (12), 2364–2375.
(ISI Journal)
14. A. F. Eftaiha, **A. K. Qaroush**,* Areej K. Hasan, K. I. Assaf, F. M. Al-Qaisi, M. E. Melhem, B. A. Al-Maythality and M. Usman, *New Journal of Chemistry*, **2021**, 45 (36), 16452–16460. (*Privileged with an inside back cover page, and hot article assignment*).
(ISI Journal)
15. A. F. Eftaiha, **A. K. Qaroush**,* B. Al-shami and K. I. Assaf. Chemisorption of CO₂ by Diamine-Tetraamido Macrocyclic Motifs: A Theoretical Study. *Organic & Biomolecular Chemistry*, **2021**, 19 (17), 3873–3881.
(ISI Journal)
16. A. F. Eftaiha, **A. K. Qaroush**,* G. Kayed, A. Abdalrahman, K. I. Assaf, and M. Paige. Morphological and Interaction Characteristics of Surface Active Ionic Liquids and Palmitic Acid in Mixed Monolayers, *PhysChemPhys*, **2020**, 21(16), 1858-1865.
(ISI Journal)
17. F. M. Al-Qaisi, **A. K. Qaroush**,* A. H. Smadi, F. Alsoubani, K. I. Assaf, T. Repo and A. F. Eftaiha, CO₂ coupling with epoxides catalysed by using one-pot synthesised, *in situ* activated zinc ascorbate under ambient conditions. *Dalton Trans.*, **2020**, 49(23), 7673–7679. (*Privileged with an inside back cover page, and hot article assignment*).
(ISI Journal)
18. A. F. Eftaiha, **A. K. Qaroush**,* A. Alsayyed, F. Al-Qaisi, F. Alsoubani and K. I. Assaf. The Eternal Battle for Global Warming: (Thio)Urea as CO₂ Wet Scrubbing Agents, *Phys. Chem. Chem. Phys.*, **2020**, 22(21), 11829-11837, (*Privileged with a hot article assignment*).
(ISI Journal)
19. A. F. Eftaiha, **A. K. Qaroush**,* M. A. Abu-Daibes, H. M. Alsyouri, and K. I. Assaf, New Metrics of Green Sorbents for CO₂ Capturing, *Adv. Sustainable Syst.*, **2020**, 4(7), 1900121, (*Privileged with a front cover page*).
(ISI Journal)
20. A. F. Eftaiha, **A. K. Qaroush**,* I. K. Okashah, F. Alsoubani, J. Futter, C. Troll, B. Rieger and K. I. Assaf, CO₂ activation through C–N, C–O and C–C bond formation. *Phys. Chem. Chem. Phys.*, **2020**, 22(3), 1306-1312.
(ISI Journal)
21. K. I. Assaf, A. F. Eftaiha, S. K. Bardaweel, M. A. Alnajjar, F. A. Alsoubani, **A. K. Qaroush**. Encapsulation of ionic liquids inside cucurbiturils, *Organic & Biomolecular Chem.*, **2020**, 18 (11), 2120-2128.
(ISI Journal)
22. A. S. Abu-Surrah, **A. K. Qaroush**. Benzothiophene-based complexes mediated formation of cyclic carbonates by cycloaddition of carbon dioxide to epoxides under mild solvent-free conditions, **2020**, *Trans. Metal Chem.*, 45 (1), 41-46.
(ISI Journal)
23. K. I. Assaf, **A. K. Qaroush**,* F. M. Mustafa, F. Alsoubani, T. M. Pehl, C. Troll, B. Rieger, A. F. Eftaiha. Biomaterials for CO₂ Harvesting: From Regulatory Functions to Wet Scrubbing Applications. *ACS Omega*, **2019**, 4 (7), 11532-11539.
(ISI Journal)
24. A. F. Eftaiha, F. M. Mustafa, F. A. Alsoubani, K. I. Assaf, **A. K. Qaroush**,* A catecholamine neurotransmitter: epinephrine as a CO₂ wet scrubbing agent. *Chem. Commun.*, **2019**, 55(24), 3449-3452 (*Privileged with an inside back cover page*).
(ISI Journal)

25. A. F. Eftaiha, **A. K. Qaroush**,* F. A. Alsoubani, T. Pehl, C. Troll, B. Rieger, B. A. Al-Maythaly, and K. I. Assaf, A green sorbent for CO₂ capture: α -cyclodextrin-based carbonate in DMSO solution. *RSC Adv.*, **2018**, 8(66), 37757-37764. (*Highlighted on the website of Berkeley Global Science Institute*, UC Berkeley). (ISI Journal)
26. **A. K. Qaroush**,* F. A. Alsoubani, A. M. Al-Khateeb, E. Nabih, E. Al-Ramahi, M. F. Khanfar, K. I. Assaf, A. F. Eftaiha, An Efficient Atom-Economical Chemoselective CO₂ Cycloaddition using Lanthanum Oxide/Tetrabutylammonium Bromide. *Sus. Energy & Fuels*, **2018**, 2(6), 1342-1349. (ISI Journal)
27. **A. K. Qaroush**,* H. S. Alshamaly, S. S. Alazzeh, R. H. Abeskron, K. I. Assaf, and A. F. Eftaiha, Inedible saccharides: a platform for CO₂ capturing, *Chem. Sci.*, **2018**, 9(5), 1088-1100. (*Privileged with a back cover page*). (ISI Journal)
28. A. F. Eftaiha, **A. K. Qaroush**,* K. I. Assaf, F. Alsoubani, T. Pehl, C. Troll, M. El-Barghouthi, Bis-Tris Propane in DMSO as a Wet Scrubbing Agent: Carbamic Acid as a Sequestered CO₂ Species, *New J. Chem.*, **2017**, 41 (20), 11941-11947. (ISI Journal)
29. **A. K. Qaroush**,* K. I. Assaf, S. K. Bardaweel, A. Al-Khateeb, F. Alsoubani, E. Al-Ramahi, M. Masri, T. Brück, C. Troll, B. Rieger, A. F. Eftaiha, Chemisorption of Carbon Dioxide by a Biodegradable Chitosan Oligosaccharide/DMSO Green Sorbent: Novel Organic Carbamate-Carbonate Bond Formation. *Green Chem.*, **2017**, 19, 4305-4314. (*Privileged with a front cover page*). (ISI Journal)
30. **A. K. Qaroush**,* K. I. Assaf, A. Al-Khateeb, F. Alsoubani, E. Nabih, C. Troll, B. Rieger, A. F. Eftaiha, Pentaerythritol-Based Molecular Sorbent for CO₂ Capturing: A Highly Efficient Wet Scrubbing Agent. *Energy Fuels*, **2017**, 31 (8), 8407-8414. (ISI Journal)
31. K. I. Assaf, **A. K. Qaroush**,* A. F. Eftaiha, New Insights in the Chemistry of Ionic Alkylorganic Carbonates: A Computational Study. *Phys. Chem. Chem. Phys.*, **2017**, 19 (23), 15403-15411. (ISI Journal)
32. A. F. Eftaiha, F. Alsoubani, K. I. Assaf, C. Troll, B. Rieger, A. H. Khaled and **A. K. Qaroush***. An Investigation of Carbon Dioxide Capture by Chitin Acetate/DMSO Binary System, *Carbohydrate Polymers*, **2016**, 152 (5), 163-169. (ISI Journal)
33. A. F. Eftaiha, F. Alsoubani, K. I. Assaf, W. M. Nau, C. Troll, and **A. K. Qaroush***. Chitin-acetate/DMSO as a supramolecular green CO₂-phile, *RSC Adv.*, **2016**, 6, 22090-22093. (ISI Journal)
34. A. S. Abu-Surrah, M. Sunjuk, K. A. Abu Safieh, **A. K. Qaroush**, and F. M. Al-Qaisee. “ γ -Diimine Palladium(II) Based Complexes Mediated Atom Transfer Radical Polymerization of Methyl Methacrylate”. *Arab. J. Chem.*, **2013**, 10 (S1), S1209-S1215. (ISI Journal)
35. **A. K. Qaroush**,* D. A. Castillo-Molina, C. Troll, M. A. Abu-Daibes, H. M. Alsayouri, A. S. Abu-Surrah and B. Rieger. [n]-Oligourea-Based Green Sorbents with Enhanced CO₂ Sorption Capacity. *ChemSusChem*, **2015**, 8, 1618-1626. *Highlighted in decoded Science*. <http://www.decodedscience.com/green-chemistry-to-capture-carbon-dioxide/53984>. (ISI Journal)
36. **A. K. Qaroush**, A. S. Al-Hamayda, Y. K. Khashman, S. I. Vagin, C. Troll, and B. Rieger. “Highly Efficient Isocyanate-Free Microwave-Assisted Synthesis of [6]-Oligourea”. *Hot Article. Catal. Sci. Technol.*, **2013**, 3, 2221-2226. (ISI Journal)

37. **A. K. Qaroush**, A. S. Al-Hamayda, Y. K. Khashman, S. I. Vagin, C. Troll, and B. Rieger. *Catal. Sci. Technol.*, **2013**, 3, 2150-2150, DOI: 10.1039/C3CY90028B. (*Privileged with an inside cover page*).
38. M. Sunjuk, A. S. Abu-Surrah, E. Al-Ramahi, **A. K. Qaroush**, and A. Saleh. "Selective coupling of carbon dioxide and epoxystyrene *via* salicylaldehyde, thiophenaldimine, and quinolinaldime- iron(II), iron(III), chromium(III) and cobalt(III)/Lewis base catalysts". *Trans. Met. Chem.*, **2013**, 38(3), 253-257.
(ISI Journal)
39. A. S. Abu-Surrah, K. A. Abu Safieh, I. M. Ahmad, M. Y. Abdalla, M. T. Ayoub, **A. K. Qaroush** and A. M. Abu-Mahtheich. "New Palladium(II) Complexes Bearing Pyrazole-Based Schiff Base Ligands: Synthesis, Characterization and Cytotoxicity". *Eur. J. Med. Chem.*, **2010**, 45, 471-475. (ISI Journal)
40. A. S. Abu-Surrah; R. Ghanem, and **A. K. Qaroush**, "Well-defined Metal Complexes-Catalyzed Polar Polymer Synthesis", A. S. Abu-Surrah, and K. Ibrahim (Eds.), "Polymerization of vinyl monomers *via* transition metal-based catalysts bearing bis(imino)pyridine ligands", Research Signpost, **2008**. ISBN: 978-81-7895-368-7.
(Chapter in a review book)
41. A. S. Abu-Surrah, and **A. K. Qaroush**. "Polymerization of Vinyl Monomers *via* MAO Activated Iron(II) Dichloro Complexes Bearing Bis(imino)pyridine-, Quinolinaldime and Thiophenaldimine Based Tridentate Nitrogen Ligands". *Eur. Polym. J.*, **2007**, 43, 2967-2974. (ISI Journal)
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1. Oral Presentation:

1. A. F. Eftaiha; **A. K. Qaroush**, *et al.* Carbon Dioxide Sequestration using Bio-Renewable Materials. Oral Presentation, 7th European Chemical Science "EuCheMs" Chemistry Congress, (26-30)-8-2018, Liverpool, United Kingdom.
2. **A. K. Qaroush**, *et al.* The Birth of Green Sorbents for CO₂ Capturing: The Chemistry of Carbamates and Organic Ionic Alkylcarbonates. Oral Presentation, 15th Jordanian Chemical Conference, (5-6)-4-2017, Mafrq, Jordan.
3. A. F. Eftaiha; **A. K. Qaroush**, *et al.* Chitin Acetate/DMSO Binary Mixture as a Green Sorbent for CO₂ Capturing. Oral Presentation, 15th Jordanian Chemical Conference, (5-6)-4-2017, Mafrq, Jordan.
4. **A. K. Qaroush**, [n]-Oligourea-based Green Sorbents as Novel Materials for the Capturing of CO₂. **Oral Presentation, Invited speaker**, Hamdi Mango Center for Scientific Research (HMCSR)-Jordan University, Amman, Jordan, May, 7th, 2015.
5. **A. K. Qaroush**, [n]-Oligourea-based Green Sorbents as Novel Materials for the Capturing of CO₂. **Oral Presentation, Invited speaker**, International Conference for Advanced Materials (ICAM2015), Jordanian University for Science and Technology (JUST), Irbid, Jordan, April, (27th-29th), 2015.
6. **A. K. Qaroush**, [n]-Oligoureas as Green Sorbents for the Capturing of CO₂. **Oral Presentation**, 14th Jordanian Chemical Conference (IVX-JCC), Al al-Bayt University, Mafrq, Jordan, April, (8th), 2015.

7. **A. K. Qaroush**, D. A. Castillo-Molina, C. Troll, and B. Rieger, “[*n*]-Oligoureas as Novel Green Solid Sorbents for the Capturing of CO₂”, *Oral presentation*, Gordon Research Conference on Green Chemistry, Hong Kong, China, (27th, July-1st August), **2014**.
8. **A. K. Qaroush**, Cyclic Carbonates as Valuable Carbonylating Agents: From Synthesis to Application., *Oral Presentation, Invited speaker*, Hashemite University, Zarqa, Jordan, 29th, November, **2012**.
9. **A. K. Qaroush**, Schiff Base Containing Late Transition Metal Based Complexes as Chemoselective Catalysts for the Synthesis of Styrene Carbonate. *Oral Presentation*, International Conference on Sciences-2012 (ICS), Al al-Bayt University, Mafraq, Jordan, November, (20th-22nd), **2012**.
10. **A. K. Qaroush**. "Synthesis of New Penta-Coordinated Iron(II) and Cobalt(II) Complexes Bearing Bis(Imino)Pyridine-, Salicylaldimine-, and Quinaldimine- Based Tridentate Ligands" *Oral Presentation, Best Winning M. Sc. Lecture*, “1st Jordanian chemical symposium for M. Sc. and B. Sc. Students”, April 26th, **2006**, Al-Karak, Jordan.

2. Posters:

1. M. H. Al-Anati, S. B. Hammad, A. A. Aladwan, T. C. Tadros, B. S. Abu imran, K. I. Assaf, A. F. Eftaiha, **A. K. Qaroush**, "Bis-armed Alkyleneimidazolium Bromide as an Organocatalyst for CO₂ Fixation and Utilization at Atmospheric Conditions", *Poster*, 16th Jordanian Chemical Conference (16th JCC), The University of Jordan, Amman, Jordan, 29th October, **2019**.
2. F. M. Mustafa, K. I. Assaf, A. K. Qaroush, and A. F. Eftaiha, Biomaterials as CO₂ wet scrubbers, *Poster*, 16th Jordanian Chemical Conference (16th JCC), The University of Jordan, Amman, Jordan, 29th October, **2019**.
3. I. K. Okashah, A. F. Eftaiha, **A. K. Qaroush**, and K. I. Assaf. Carbon Dioxide Activation throughout C-N, C-O and C-C Bond Formation, *Poster*, 16th Jordanian Chemical Conference (16th JCC), The University of Jordan, Amman, Jordan, 29th October, **2019**.
4. H. Abed Al-Fattah, A. F. Eftaiha, S. K. Bardaweel, F. A. Alsoubani, **A. K. Qaroush**, M. I. El-Barghoughi, K. I. Assaf. Encapsulation of Ionic Liquids inside Cucurbiturils for Potential Therapeutic Application, *Poster*, 16th Jordanian Chemical Conference (16th JCC), The University of Jordan, Amman, Jordan, 29th October, **2019**.
5. A. F. Eftaiha; **A. K. Qaroush**, Supramolecular Chemisorption of Carbon Dioxide by Chitin Acetate Oligomer. *Poster*, **2016**, Renewable Carbon Workshop “Mellichamp Academic Initiative in Sustainability”, 21-9-2016, Santa Barbara, California, United State of America.
6. **A. K. Qaroush**, D. A. Castillo-Molina, C. Troll, and B. Rieger, “[*n*]-Oligoureas as Novel Green Solid Sorbents for the Capturing of CO₂”, *Poster*, Gordon Research Conference on Green Chemistry, Hong Kong, China, (27th July-1st August), **2014**.
7. **A. K. Qaroush**, C. Troll, and B. Rieger. “Propylene Carbonate as a Green Carbonylating Agent: A Novel Methodology for the Synthesis of [*n*]-Oligourea”, *Poster*, International Conference on Sciences-2012 (ICS), Al al-Bayt University, Mafraq, Jordan, November, (20th-22nd), **2012**.
8. **A. K. Qaroush**, C. Troll, and B. Rieger. “Novel Task Specific Ionic Liquids as Sorbents for the Capture of CO₂”, *Poster*, “Carbon Dioxide as Feedstock for Chemistry and Polymers”, Essen, Germany, October, (10th-11th), **2012**.

9. **A. K. Qaroush**, A. S. Al-Hamayda, Y. K. Khashman, V. D'Elia, S. I. Vagin, C. Troll, and B. Rieger. A New Organocatalyzed Microwave-Assisted Isocyanate-Free Synthesis of $[n]$ -Oligourea: A New energy-saving, eco-friendly method generating Oligourea Using Green Chemistry Approaches, *Poster*, **244th ACS national meeting**, Philadelphia, Pennsylvania, United States. August, (19th–23rd), **2012**.
10. **A. K. Qaroush**, Y. Li, C. E. Anderson, S. Y. T. Lee, K. Salmeia, A. Monassier, C. Troll, M. Cokoja, F. E. Kühn, and B. Rieger. CO₂ as a Building Block for the Synthesis of Cyclic Urea/Urethanes, *Poster*, European-Asian Chemical conference of chemical Sciences, Eu-AsC₂S-11, Deadsea, Jordan, October, (6th-10th), **2010**.
Best Poster Presentation for all sections of chemistry.
11. K. Salmeia, C. E. Anderson, **A. K. Qaroush**, A. Monassier, S. Y. T. Lee, C. Troll, M. Cokoja, F. E. Kühn, and B. Rieger. Poly(propylene carbonate): Physical Properties and Microstructure”. *Poster*, European-Asian Chemical conference of chemical Sciences, Eu-AsC₂S-11, Deadsea, Jordan, October, (6th-10th), **2010**.
12. A. Monassier, S. Y. T. Lee, Y. Li, **A. K. Qaroush**, K. Salmeia, C. E. Anderson, C. Troll, M. Cokoja, F. E. Kühn, and B. Rieger. “Molecular Activation of CO₂: Synthetic Routes towards New Activating Complexes”. *Poster*, European-Asian Chemical conference of chemical Sciences, Eu-AsC₂S-11, Deadsea, Jordan, October, (6th-10th), **2010**.
13. S. Y. T. Lee, A. Monassier, Y. Li, **A. K. Qaroush**, K. Salmeia, C. E. Anderson, C. Troll, M. Cokoja, F. E. Kühn, and B. Rieger. “Formation of Methyl Acrylate from CO₂ and Ethylene *via* Methylation of Nickelalactones”. *Poster*, European-Asian Chemical conference of chemical Sciences, Eu-AsC₂S-11, Deadsea, Jordan, October, (6th-10th), **2010**.
14. **A. K. Qaroush**, F. M. Alqaisi, and A. S. Abu-Surrah. “ α -Olefin-Functionalized Polymers with MAO Activated Iron(II) Dichloro Complexes Bearing Bis(imino)pyridine-, Quinaldimine- and Thiophenaldimine-based Tridentate Nitrogen Ligands”. *Poster*, 7th Jordanian International Conference in Chemistry [7th JCC], Al al-Bayt University, Mafraq, Jordan. March, 1st, **2007**.
15. F. M. Alqaisi, **A. K. Qaroush**, Hamzeh M. Abdel-Halim, and Adnan. S. Abu-Surrah. “Synthesis and Characterization of New Iron (III), Cobalt(III) and Chromium(III) with N \cap N and N \cap O Schiff Base Ligands”. *Poster*, 7th Jordanian International Conference in Chemistry [7th JCC], Al al-Bayt University, Mafraq, Jordan. March 1st, **2007**.
16. **A. K. Qaroush**, F. M. Alqaisi, and A. S. Abu-Surrah “Synthesis of New Penta-Coordinated Iron(II) and Cobalt(II) Complexes Bearing Bis(Imino)Pyridine-, Salicylaldimine- and Quinaldimine- Based Tridentate Ligands”. *Poster*, “1st Jordanian chemical symposium for M. Sc. and B. Sc. students”, Al-Karak, Jordan, April 26th, **2006**.
17. F. M. Alqaisi, **A. K. Qaroush**, Hamzeh M. Abdel-Halim, and Adnan. S. Abu-Surrah. “Synthesis and Characterization of New Iron (III), Cobalt(III) and Chromium(III) Based Complexes Bearing Nitrogen Ligands: Evaluation of the Complexes as Catalysts for Oxidation of Amino Acids”. *Poster*, “1st Jordanian chemical symposium for M. Sc. and B. Sc. students” Al-Karak, Jordan, April 26th, **2006**.
18. **A. K. Qaroush**, F. M. Alqaisi, and A. S. Abu-Surrah “ α -Olefin-Functionalized Polymers *via* 2,6-Bis(Imino)Pyridine Iron(II)-Based Catalysts”. *Poster*, the 6th Jordanian International Conference in Chemistry, Zarqa, Jordan, December 12th, **2005**.

Amman, 07/04/2024

Signature:

A handwritten signature in black ink, appearing to read "F. Anouste", written over a horizontal line.