Curriculum Vitae (CV)

Dr. Khaled O. Sebakhy (Canadian citizen)

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Phone: +97338894986, Email: khaled.sebakhy@polytechnic.bh
Researchgate: https://www.researchgate.net/profile/Khaled-Sebakhy
Google Scholar: https://scholar.google.com/citations?user=v8RpPfwAAAAJ&hl=en
Scopus: https://www.scopus.com/authid/detail.uri?authorId=36769279400

Research Interests: *Sustainability, Sustainable Polymers, Soft matter, Bio-based Coatings, Hydrogels, Catalysis*

EDUCATION

- **PhD** in Chemical & Petroleum Engineering, University of Calgary, Calgary, Canada (Specialization: Heterogeneous Catalysis). (Catalytic Hydrogenation Reactions/Hydrogenating Catalysts) (Feb 2018)

- **Mphil** in Polymer/Macromolecular Chemistry, University of Queensland, Brisbane, Australia (June 2013)

- **MSc** in Chemical Engineering (Specialization: Polymer Science and Engineering), Alexandria University, Egypt (Sep 2006)

- **DAAD Internship**: Otto-Von Guericke, University of Magdeburg, Magdeburg, Germany (June 2003-Sep 2003)

- **BSc** in Chemical Engineering, Alexandria University, Alexandria, Egypt (Sep 2004)

- **High School**: Alexandria Language School (ALS), Alexandria, Egypt (June 1999)

- **Primary School**: Gulf English School of Kuwait (GES), Kuwait

RESEARCH INTERESTS and EXPERIENCE

(a) **Polymer Chemistry & Engineering**: Living/Controlled Radical Polymerizations (RAFT, ATRP, SET, NMP), Polymer Colloids, Emulsion Polymerizations, Nanoreactors, Self-Assembly, Thermoresponsive Polymers, Amphiphilic Copolymers, Size Exclusion Chromatography (SEC), Polymer Reaction Engineering, Modelling of Free-radical Polymerization Reactions, Pulsed-laser Polymerizations in Conjunction with Size Exclusion Chromatography (PLP-SEC), Polymerizations in Supercritical Carbon Dioxide ($ScCO_2$).

(b) **Heterogeneous Catalysis**: Industrial and Applied Catalysis, Nano catalysts, Transition metal carbides, Zeolites, Catalysts for Olefins hydrogenation in real petroleum feedstocks and Gas-phase catalytic reactions.

(c) **Additional**: Gas Chromatography (GC), Mass Spectroscopy (MS), Supercritical Fluid Chromatography (SFC), Petroleum Science, Enhanced Oil Recovery (EOR), Heavy Oil Upgrading, Aquaprocessing, Catalytic Steam Cracking, Hydrocracking, Delayed Coking, Asphaltenes, Adsorption, Nanoparticles.

RELEVANT WORK EXPERIENCE AND RESEARCH COLLABORATIONS

Assistant professor (Tenure-track) Sep 2025-present

Department of Chemical Engineering,
School of Engineering (EDICT)
Bahrain Polytechnic University,
Isa Town, Kingdom of Bahrain

FWO Postdoctoral Research Fellow Dec 2022-Aug 2025

Centre for Polymer and Material Technologies (CPMT),
Laboratory for Chemical Technology (LCT),
Department of Materials, Textiles and Chemical Engineering,
Ghent University, Ghent, Belgium
Current projects: (a) RAFT-mediated Polymerizations of Biorenewable monomers in Nanoreactors (Principal investigator)

(b) Sustainable Polymers Synthesized by RAFT (in Collaboration with Dr. Fiona Hatton, Loughborough University, UK)
(a) Enzymatic polymerization of Bio-renewable/biobased butyrolactone monomers to produce thermally stable and antimicrobial bio-based green coatings (in Collaboration with Prof. Mohammed Habib, Cairo University, Egypt)
(c) Identification of the different water pools in alginate and starch hydrogels (in Collaboration with Dr. Mustapha El Hariri El Nokab and Prof. Tuo Wang, Department of Chemistry, Michigan State University, East Lansing, USA).
(d) Enzymatic hydrolysis of starch to unravel the complexity of its chemical structure (in Collaboration with Prof. Ahmed El Shewy, Department of Chemistry, American University in Baghdad (AUIB), Iraq).

Faculty of Science and Engineering (FSE) Lecturer and Research Fellow Sep 2018- Sep 2022

Engineering and Technology Institute Groningen, Chemical Product Technology,
Department of Chemical Engineering, University of Groningen (RUG), Groningen, Netherlands

Postdoctoral Research Fellow (PDF) –NSERC-DG Jan 2018- Aug 2018

Department of Mechanical and Aerospace Engineering, Carleton University, Ottawa, Canada
(Collaborative research with Gastops Ltd. Company, Ottawa): "Experimental and Computational Study on the Kinetics of Thermo-oxidative Degradation of Antioxidants in Lubricant Oils for Diesel Engines"

Tutor 2016 – 2017
Tutor Doctor, Calgary, Canada

- I taught high school and elementary school students Mathematics, Physics and Chemistry at home.
- Helped students with learning disabilities.
- Made the center a very attractive and conducive place for learning.
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Tutor 2014 – 2016
Renert Tutoring Centre (RTC), Calgary, Canada

- I taught high school and elementary school Mathematics, Physics, and Chemistry.
- Helped to manage a center full of students.
- Made the center very attractive and conducive place for learning.

Graduate Teaching Assistant (TA) 2013–2017

Department of Chemical and Petroleum Engineering, University of Calgary, Canada

- Taught Thermodynamics, Fluid Mechanics, Separation Processes, Experimental Design and Statistics for Engineers and Heat Transfer Laboratories.
- Co-developed a laboratory procedure and helped set up Heat Transfer laboratory experiments for undergraduate students.
- Conducted consultations with undergraduate students on preparation of laboratory reports.
- Graded assignments, quizzes and mid-term exams and organized tutorials.

Haskayne School of Business, University of Calgary, Canada 2014–2014

- Assisted in teaching a master's level course: Sustainable Energy and Development (SEDV601)

Department of Chemical Engineering, University of Queensland, Brisbane, Australia 2011–2012

- Taught Process Control and Dynamics, Unit Operations, Reaction Engineering Kinetics and Heat transfer.
- Graded assignments, quizzes, mid-term exams, final exams, and organized tutorials.
- Helped in organizing trips to chemical plants for undergraduate students.

Department of Chemical Engineering, Queen's University, Kingston, Ontario, Canada

- Assisted in teaching Mass Transfer Operations and Fluid Mechanics.

Department of Chemical Engineering, Alexandria University, Egypt

- I assisted in teaching Dyes and Textiles for Chemical Engineers and participated in the labs.

Process Engineer at Abu-Qir Fertilizers Company (AFC), Alexandria, Egypt (2 years of experience)
- I worked with a team of engineers in an ammonia synthesis plant.
- Supervising and managing technicians in the plant.
- Writing reports for the daily production of the plant.
- Participating in the revamp of ammonia plant.

COURSES AND TUTORIALS TAUGHT

- Mass Transfer Operations (Queen's University, Canada)
- Chemical Engineering Fundamentals (University of Calgary, Canada)
- Fluid Mechanics (Queen's University, Canada)
- Process Control & Dynamics (University of Queensland, Australia)
- Separation Processes (University of Queensland, Australia)

- Heat Transfer (University of Calgary, Canada)
- Thermodynamics (University of Calgary, Canada)
- Unit Operations (University of Queensland, Australia)
- Reaction Engineering Kinetics (University of Queensland, Australia)
- Experimental Design and Statistics for Chemical Engineers (University of Calgary, Canada)
- Sustainable Energy and Development (master's level: University of Calgary, Canada)
- Dyes and Textiles for Chemical Engineers (Alexandria University, Alexandria, Egypt)

COURSES TAUGHT at UNIVERSITY OF GRONINGEN

- Lecturer for Technical Thermodynamics (Industrial Engineering and Management (IEM))
- Lecturer for Process Control and Dynamics (May 2019 & September 2019 & 2020): Created and designed CUAO and all study material for the course.

COURSES TAUGHT at GHENT UNIVERSITY

- Polymer Reaction Engineering (PRE) (master's course in Chemical Engineering) (2023-2024)
- Process Safety for Chemical Engineers

GRADUATE COURSES UNDERTAKEN

- Advanced Mathematical Methods (ENG703), University of Calgary
- Advanced Fluid Mechanics (ENG 723), University of Calgary
- Spectroscopic Techniques for Identification of Organic and Inorganic compounds, Queen's University, Canada
- Colloidal and Surface Phenomena, Queen's University, Canada
- Polymer Reaction Engineering, Queen's University, Canada
- Mathematical Modelling of Chemical Processes, Queen's University, Canada
- Polymer Additives, Alexandria University, Egypt
- Polymer Rheology, Alexandria University, Egypt
- Advanced Transport Phenomena, Alexandria University, Egypt
- Mathematical Models and Polymerization Reactor Design and its Control, Alexandria University
- Numerical Methods in Chemical Engineering, Alexandria University, Egypt
- Statistical Analysis in Chemical Engineering, Alexandria University, Egypt

ADDITIONAL WORK EXPERIENCE

Deutscher Akademischer Austauschdienst (DAAD) Exchange Student and Intern
Verfahrens und Systeme Technik, Otto-Von Guericke, Universitat Magdeburg (Department of Mechanical and Process Engineering, University of Magdeburg), Germany.

- Project title: *Simulation and Modeling of the Kinetics of Agglomeration and Peptization during the Sol-Gel Synthesis of Titanium Dioxide (TiO_2) Nanoparticles* (Supervisor: Prof. Ing. Habil. Jurgen Thomas).

Research Associate
Chemical Engineering Department, Queen's University, Canada.

A key member of the Polymer Reaction Engineering (PRE) Group:

- Project title: *Investigation of propagation rate Coefficients in Free Radical Polymerizations by Pulsed-Laser Polymerization in Conjunction with Size-Exclusion Chromatography (PLP-SEC) Technique*.

- Synthesis of Polymers by Free Radical Polymerization

- Size-Exclusion Chromatography (SEC) for Molecular Weight Distribution (MWD) Determination

- Evaluation of Propagation Rate Constants for a Variety of Vinyl Monomers Using PLP-SEC

Research Associate
Chemical and Biochemical Engineering Department, University of Western Ontario, London, Ontario, Canada

- Project title: *Synthesis of Polymer Nanoparticles via Free Radical Polymerizations of Fluorinated Vinyl Monomers in Supercritical Carbon dioxide ($ScCO_2$)*.

VOLUNTEER EXPERIENCE

- Bargaining committee member of Carleton University Postdoctoral Union (CUPU)
- Taught, mentored, and inspired youths of Syrian Refugees, Calgary, Canada
- Helped to raise funds, plan, and volunteer during practice and games for Minor Hockey League Association (MHLA) of Canada
- Mentoring domestic and international interns, undergraduate and masters' students in our research group at the University of Calgary. Duties include the following:
- Providing a detailed experimental plan with several tasks and objectives
- Training students in instrumentation techniques
- Orienting the students to the lab's safety rules and ensuring students get WHMIS and/or H_2S alive trainings.
- Supervising students in the lab daily
- Helping students interpret their own results and editing their technical reports before sending it to the PI/supervisor
- Fundraising from local companies for covering students' activities and field trips
- Volunteering in Calgary Catholic Immigration Society for Immigrant Youth Outreach Program (IYOP). Duties include Tutoring Chemistry, for youths aged 15-20.

LABORATORY EXPERIENCE

- Analysis and Quantification of Hydrocarbons using SARA, HPLC, GC, GC-MS and SFC Analyses
- Determination of Polymer Molecular Weight Distributions (MWDs) by Size-Exclusion Chromatography (SEC)
- Particle Size Analysis using Dynamic Light Scattering (DLS) (Malvern Sizer)
- X-Ray Diffraction of Crystalline Materials (XRD)
- Surface analysis using Scanning Electron Microscopy coupled with Energy Dispersive Spectroscopy (SEM-EDS)
- Thermogravimetric Analysis (TGA)
- Temperature-Programmed Reduction (TPR)
- Surface Area Measurements using BET-Micrometrics Surface Analyzer (BET)
- High Resolution Transmission Electron Microscopy (HRTEM)
- Fourier Transform Infrared (FT-IR)

PILOT PLANT EXPERIENCE

- Experienced chemical engineer in building pilot plants for fixed-bed gas-phase catalytic reactions.
- Installing Pumps, Tubing, Fittings and Catalytic reactors
- Swagelok Valves and Fittings Training
- Developing Piping and Instrumentation Diagrams (PIDs) for Pilot Plants
- Developing Standard Operating Procedures (SOPs) for Pilot Plants and Hazard and Operability Study (HAZOPs)

PROFESSIONAL AFFILIATION AND CERTIFICATION

- Current: Guest Editor for "*Polymers*" Journal, MDPI
- Current: Guest Editor for "*Materials*" Journal, MDPI
- Current: Guest Editor for "*Crystals*" Journal, MDPI
- Current: Guest Editor for "*Gels*" Journal, MDPI
- Review Editor: Frontiers in Energy Research - Sustainable Energy Systems
- Invited Speaker: Department of Chemistry, Materials and Chemical Engineering "Giulio Natta", Politecnico di Milano, Milano, Italy
- Invited Speaker: Department of Materials, Loughborough University, UK
- Member, American Institute for Chemical Engineers (AIChE)
- Member, American Chemical Society (ACS)
- Member, Royal Society of Chemistry (RSC)
- Member, Society of Petroleum Engineers (SPE)
- Member, Canadian Society of Chemical Engineers (CSChE)
- Member, Egyptian Engineers Syndicate
- Member, Bernoulli Gronings Technologen Dispuut (G.T.D), University of Groningen
- Member, Rotaract Groningen Club, Groningen, Netherlands
- Member, Postdoctoral Council, Faculty of Science & Engineering, University of Groningen
- H_2S Alive training
- WHMIS training
- Swagelok certificate for tubing and fittings installation
- University Teaching Skills (UTS) certificate, University of Groningen
- I have peer-reviewed more than 60 research articles in *ACS*, *RSC*, *Elsevier*, *Wiley*, *Springer* and *MDPI* scientific publishers
- Member and regular participant in the Chemical Engineering staff meetings, University of Groningen
- Reviewer for *Industrial & Engineering Chemistry Research*, American Chemical Society (ACS) (4 peer reviews)
- Reviewer for *Catalysis Science & Technology*, Royal Society of Chemistry (RSC) (1 peer review)
- Reviewer for *Material Advances*, Royal Society of Chemistry (RSC) (1 peer review)
- Reviewer for *Journal of Inorganic and Organometallic Polymers and Materials*, Springer nature
- Reviewer for *Biomass Conversion and Biorefinery*, Springer nature (1 peer review)
- Reviewer for *Minerals*, MDPI, Basel, Switzerland (6 peer reviews)
- Reviewer for *Applied Sciences*, MDPI, Basel, Switzerland (10 peer reviews)
- Reviewer for *Catalysts*, MDPI, Basel, Switzerland (5 peer reviews)
- Reviewer for *Materials*, MDPI, Basel, Switzerland (5 peer reviews)
- Reviewer for *Energies*, MDPI, Basel, Switzerland (4 peer reviews)
- Reviewer for *Scientific Reports*, Nature Publishing Group (1 peer review)
- Reviewer for *Coatings*, MDPI, Basel, Switzerland (4 peer reviews)
- Reviewer for *Ceramics*, MDPI, Basel, Switzerland (1 peer review)
- Reviewer for *Coatings*, MDPI, Basel, Switzerland (4 peer reviews)

- Reviewer for *Sustainability*, MDPI, Basel, Switzerland (10 peer reviews)
- Reviewer for *Molecules*, MDPI, Basel, Switzerland (3 peer reviews)
- Reviewer for *Water*, MDPI, Basel, Switzerland (2 peer reviews)
- Reviewer for *Journal of Material Science*, Springer (1 peer review)
- Reviewer for *Chemistry Select*, Wiley (1 peer review)
- Reviewer for *Microplastics*, MDPI, Basel, Switzerland (2 peer reviews)
- Member in the editorial board of *Journal of Petrochemical Engineering*
- Member in the editorial board of *American Journal of Chemical Engineering*

GRANTS/AWARDS/SCHOLARSHIPS/FELLOWSHIPS/HONORS

- Science, Technology, and Innovation Funding Authority Grant (STDF), Cairo, Egypt (2 million Egyptian Pounds): 2023
- Flanders (FWO) Postdoctoral Fellowship, University of Ghent, Belgium
- Mitacs Industrial Postdoctoral Fellowship, Concordia University, Montreal, Canada (2023)
- Special Research Fund/ BOF Postdoctoral Fellowship, Ghent University, Belgium
- Mitacs Accelerate Postdoctoral (PDF) Fellowship, University of Alberta, Edmonton, Canada
- Natural Sciences and Engineering Research Council of Canada Discovery Grant (NSERC-DG), Carleton University, Ottawa, Canada
- Queen Elizabeth II Doctoral Fellowship, University of Calgary, Canada
- Natural Sciences and Engineering Research Council of Canada (NSERC)- Shortlisted, Canada
- Faculty of Graduate Studies (FGS) Travel Award, University of Calgary, Canada
- Teaching Excellence Award, University of Calgary, Canada
- Royal Society of Chemistry (RSC) Travel Bursary
- International Postgraduate Research Scholarship (IPRS), University of Queensland, Australia
- Australian Institute for Bioengineering and Nanotechnology (AIBN) Scholarship, Australia
- Newcastle Postgraduate Scholarship (NPS), United Kingdom
- R. Samuel McLaughlin Fellowship, Queen's University, Canada
- Queen's Graduate Award (QGA), Queen's University, Canada
- Dean's Graduate Award (DGA), Alexandria University, Egypt
- International Association for the Exchange of Students for Technical Experience (IAESTE) Award
- Research Excellence Award, Alexandria University, Egypt
- Teaching Excellence Award, Alexandria University, Egypt
- Dean's List of Honors, Department of Chemical Engineering, Alexandria University, Egypt

LANGUAGE AND COMPUTER SKILLS

Programming Languages:	MATLAB, PREDICI Software and FORTRAN.
Software:	MS Office, Sigma Plot, VMG and Origin.
Languages:	English, German, Arabic, French and Turkish.

SELECTED PUBLICATIONS

a. Articles Published, Accepted and Submitted in Peer-Reviewed Journals

1) **Sebakhy, K. O**; Kessel, S.; Monteiro, M. J. Nanoreactors to Synthesize Well-defined Polymer Nanoparticles: Decoupling Particle Size from Molecular Weight. *Macromolecules* **2010**, *43*(23), pp 9598-9600. DOI: 10.1021/ma1019889.

2) **Sebakhy, K. O**; Gavrilov, M.; Valade, D.; Jia, Z.; Monteiro, M. J. Nanoparticles of Well-Defined 4-Arm Stars made using Nanoreactors in Water. *Macromolecular Rapid Communications* **2014**, *35*(2), pp193-197. https://doi.org/10.1002/marc.201300665. (Special issue: Precisely Controlled Polymer Architectures via Molecular Engineering, Part 1).

3) **Sebakhy, K. O***.; Vitale, G.; Hassan, A.; Pereira-Almao, P. New Insights into the Kinetics of Structural Transformation and Hydrogenation Activity of Nano-Crystalline Molybdenum Carbide. *Catalysis Letters* **2018**, 148(3), pp 904-923. https://doi.org/10.1007/s10562-017-2274-3.

4) **Sebakhy, K. O***.; Vitale, G.; Pereira-Almao, P. Production of Highly Dispersed Ni within Nickel Silicate Materials with the MFI Structure for the Selective Hydrogenation of Olefins. *Ind. Eng. Chem. Res* **2019**, *58*, 20, 8597-8611. https://doi.org/10.1021/acs.iecr.8b05991.

5) **Sebakhy, K. O***.; Vitale, G.; Pereira-Almao, P. A. Dispersed Ni-Doped Aegirine Nanocatalysts for the Selective Hydrogenation of Olefinic Molecules. *ACS Appl. Nano Mater* **2018**, *1*, 11, 6269-6280. https://doi.org/10.1021/acsanm.8b01472.

6) **Sebakhy, K. O**.; Ortega, L. C.; M. Trujillo.; Pereira-Almao, P. Proton Nuclear Magnetic Resonance (^{1}H-NMR) Methodology for Monolefins Analysis: Application to Aquaprocessing Upgraded Bitumen. *Energy Fuels* **2020**, *34*, 8, 9252–9261. https://doi.org/10.1021/acs.energyfuels.0c00504.

7) **Sebakhy, K. O**.; Bouhadda, Y. Adsorption of Algerian Asphaltenes onto Synthesized Maghemite Iron Oxide Nanoparticles. *Petroleum Chemistry* **2020**, 61, 67-75. DOI: 10.1134/S0965544121010072.

8) Boulif, N.; **Sebakhy, K.O**.; Raffa, P. Design and Synthesis of Novel di- and triblock Amphiphilic Polyelectrolytes: Improving Salt-induced Viscosity Reduction of Water Solutions for Potential Application in Enhanced Oil Recovery. *J Appl Polym Sci* **2020**, 138, 50366. DOI: 10.1002/app.50366.

9) El Hariri El Nokab, M.; **Sebakhy, K. O***. Solid state NMR spectroscopy a valuable technique for structural insights of advanced thin film materials: A Review. *Nanomaterials* **2021** *11*(6), 1494. https://doi.org/10.3390/nano11061494.

10) Alassmy Y.; **Sebakhy, K. O**.; Picchioni F.; Pescarmona, P. Novel non-ionic surfactants synthesized through the reaction of CO_2 with long alkyl chain epoxides. *Journal of CO_2 Utilization* **2021**, *50*, 101577. https://doi.org/10.1016/j.jcou.2021.101577.

11) El Hariri El Nokab, M.; **Sebakhy, K. O**. Solid-state NMR spectroscopy insights for resolving different water pools in alginate hydrogels. *Food Hydrocolloids* **2022**, *127*, 107500. https://doi.org/10.1016/j.foodhyd.2022.107500.

12) **Sebakhy, K. O**.; Manasrah, A. D. A study on the Characteristics of Algerian Hassi-Messaoud Asphaltenes: Solubility and Precipitation. *Petroleum Science and Technology* **2021**, *14*, 1-23. https://doi.org/10.1080/10916466.2021.2017457.

13) El Hariri El Nokab, M.; **Sebakhy, K. O***. Solid State NMR a Powerful Technique for Investigating Sustainable/Renewable Cellulose-Based Materials. *Polymers* **2022**, *14*, 1049. https://doi.org/10.3390/polym14051049.

14) Versteeg, F. G.; Hegeman, N. C.; **Sebakhy, K. O**.; Picchioni, F. RAFT Polymerization of a Biorenewable/Sustainable Monomer Via a Green Process. *Macromolecular Rapid Communications* **2022**, 43, 2200045. https://doi.org/10.1002/marc.202200045.

15) Asgar Pour, Z.; **Sebakhy, K. O***. A Review on the Effects of Organic Structure-Directing Agents on the Hydrothermal Synthesis and Physicochemical Properties of Zeolites. *Chemistry* **2022**, *4*(2), 431-446. https://doi.org/10.3390/chemistry4020032.

16) Asgar Pour, Z.; Koelewijn, R.; El Hariri El Nokab, M; Sebakhy, K. O.; Pescarmona, P. Binder-free zeolite Beta beads with hierarchical porosity: synthesis and application as heterogeneous catalysts for anisole acylation. *ChemCatChem* **2022**, https://doi.org/10.1002/cctc.202200518.

17) Graur, V.; Mukherjee, A.; **Sebakhy, K. O***.; Bose, R. K. Initiated Chemical Vapor Deposition (iCVD) of Bio-based Poly(tulipalin A) Coatings: Structure and Material Properties. *Polymers* **2022**, *14*, 3993. https://doi.org/10.3390/polym14193993.

18) El Hariri El Nokab, M.; Alassmy, Y.; Abduljawad, M. M.; **Sebakhy, K. O***. Solid state NMR spectroscopy: Towards structural insights of starch-based materials in the food industry. *Polymers* **2022**, *14*, 4686. https://doi.org/10.3390/polym14214686.

19) Alassmy, Y. A., Abduljawad, M. M., Al-shamrani, K. M., Alnafisah, M. S., El Nokab, M. E. H., Pour, Z. A., Gomes, D. R., Yolcu, S., **Sebakhy, K. O**.* A green/sustainable organocatalytic pathway for the preparation of esterified supercritical CO_2-dried potato starch products. *J. Appl. Polym. Sci* **2023**, e53585. https://doi.org/10.1002/app.53585. (Top viewed article by Wiley in 2023)

20) Pour, Z. A., **Sebakhy, K. O**.* A review on binder-containing extrusion technique and binder-free shaping techniques for structuring of zeolites into different geometrical bodies. *Catalysts* **2023**, *13*(4), 656; https://doi.org/10.3390/catal13040656.

21) Elshewy, A.; Es Sayed, J., Alassmy, Y. A., Abduljawad, M. M; El Nokab, M. E. H., M. M., Van Steenberge, P. H. M, D'hooge, D. R, Habib, M. H., **Sebakhy, K. O**.* Horseradish Peroxidase-Mediated Enzymatic Polymerization of a Biorenewable/Bio-based Butyrolactone Monomer via a Sustainable Approach: Production of Thermally Stable Polymers. *ACS Applied Polymer Materials* **2024**, *6*, 115-125. https://doi.org/10.1021/acsapm.3c01740.

22) Pour, Z. A.; **Sebakhy, K. O**.* A new insight into zeolite synthesis and crystallization process: mechanism of nucleation and growth steps. *Crystals* **2023**, *13*(6), 959. https://doi.org/10.3390/cryst13060959.

23) **Sebakhy, K. O**.* Insights into the Characterization of the Self Assembly of Different Types of Amphiphilic Molecules Using Dynamic Light Scattering. *ACS Omega* **2023**, 8, 50, 47714–47722. https://doi.org/10.1021/acsomega.3c05956.

24) Pour, Z. A.; Abduljawad, M. M; Alassmy, Y. A.; Alnafisah, M. S.; El Nokab, M. E. H.; Van Steenberge, P. H. M.; **Sebakhy, K. O**.* Synergistic Catalytic Effects of Alloys of Noble Metal Nanoparticles Supported on Two Different Supports: Crystalline Zeolite Sn-Beta and Carbon Nanotubes for Glycerol Conversion to Methyl Lactate. *Catalysts* **2023**, *13*(12), 1486. https://doi.org/10.3390/catal13121486.

25) Asgar Pour Z.; Sebakhy K. O. Hydrotalcite as Versatile Functional Materials for Renewable Feedstock Upgrading to Value-added Chemicals. *Advanced Materials Science and Technology* **2024**, *5*(2), 0526072. https://doi.org/10.37155/2717-526X-0502-5.

26) Sharshira, E. M.; Ataalla, A. A.; **Sebakhy, K. O**.; Hagar, M. Molecular conjugation and crystallinity impact of designed novel chalcone based polyesters and polyesteramides on their thermal-electrical conductivity. *Results in Chemistry* **2024**, *7*, 101484. https://doi.org/10.1016/j.rechem.2024.101484.

27) El Hariri El Nokab, M.; Es Sayed, J.; De Witte, F.; Dewettinck, K.; Elshewy, A.; Zhang, Z.; Van Steenberge, P. H. M.; Wang, T.; **Sebakhy, K. O***. A comparative analytical study for the different water pools

present in alginate hydrogels: Qualitative vs. quantitative approaches. *Food Hydrocolloids* **2024**, *154*, 110159. https://doi.org/10.1016/j.foodhyd.2024.110159.

28) Abbas Abbas, H.; Asgar Pour, Z.; Alnafisah, M. S.; Gonzales Cortes, P.; El Hariri El Nokab, M.; Elshewy, A.; **Sebakhy, K. O***. Enhanced Catalytic Hydrogenation of Olefins in Sulfur-Rich Naphtha Using Molybdenum Carbide Supported on γ-Al_2O_3 Spheres under Steam Conditions: Simulating the Hot Separator Stream Process. *Materials* **2024**, *17*(10), 2278. https://doi.org/10.3390/ma17102278.

29) Harris, O.; Prior, I.; El-Khoury, R.; Jordan, B.; Larder, R.; **Sebakhy, K. O**.; Hatton, F. RAFT Solution Polymerisation of a Bio-based α-methylene-γ-butyrolactone Monomer in Cyrene. *ChemComm* **2024** (published online). https://doi.org/10.1039/D4CC04571H

30) Refaat, M.; ElRakaiby, M. T.; El Hariri El Nokab, M.; Es Sayed, J.; Elshewy, A.; **Sebakhy, K. O**.; Moneib, N.; Wang, T.; Smith, T. J.; Habib, M. H. Polymerization Potential of a Bacterial CotA-Laccase for β-Naphthol: Enzyme Structure and Comprehensive Polymer Characterization. *Frontiers in Microbiology* **2024**, 15. https://doi.org/10.3389/fmicb.2024.1501112

31) Asgar Pour, Z.; Abu Zeitoun, E.; Alassmy, Y. A.; El Hariri El Nokab, M.; Van Steenberge, P. H. M.; **Sebakhy, K. O***. Impact of Synthesis Parameters on the Crystallinity of Macroscopic Zeolite Y Spheres Shaped Using Resin Hard Templates. *Crystals* **2024**, *14*(12), 1051; https://doi.org/10.3390/cryst14121051.

32) Daikh, Z.; Abu Zeitoun, E.; Fergoug, T.; Bouhadda, Y.; **Sebakhy, K. O***.; Derkaoui, K.; Bekki, K.; Kadiri, A.; Chaker, Y.; El Hariri El Nokab, M.; Vojvodin, C. S.; Wang, T.; Elshewy, A.; Van Steenberge, P. H. M. Synthesis of Shape-controlled Silica Nanoparticles via Dual Soft Templates: A Comparative Study between Aqueous and Microemulsion Synthesis for the impregnation of Procaine Anesthesia Drug. *Canadian Journal of Chemical Engineering* **2025** (published). https://doi.org/10.1002/cjce.70087

33) Ullah, M. W.; Ul-Islam, M.; Shehzad, A.; Manan, S.; Ul Islam, S.; Fatima, A.; Al-Saidi, A. K.; El Hariri El Nokab, M.; Sanchez, J. Q.; **Sebakhy, K. O***. From Bioinks to Functional Tissues and Organs: Advances, Challenges, and the Promise of 3D Bioprinting. *Macromol. Mater. Eng* **2025** (published). https://doi.org/10.1002/mame.202500251

34) Zhang, K.; Perdomo, M. E.; Kong, B.; **Sebakhy, K. O**.; Wu, K.; Jing, G.; Han, J.; Lu, X.; Hong, A.; Chen, Z. (2015) CO_2 Near-Miscible Flooding for Tight Oil Exploitation. *SPE Asia Pacific Unconventional Resources Conference and Exhibition*, Society of Petroleum Engineers, Brisbane, Australia, November 9, **2015**. https://doi.org/10.2118/176826-MS.

35) Zhang, K.; **Sebakhy, K. O**.; Wu, K.; Jing, G.; Chen, N.; Chen, Z.; Hong, A.; Torsaeter, O. (2015) Future Trends for Tight Oil Exploitation. *SPE North Africa Technical Conference and Exhibition*, Society of Petroleum Engineers, Cairo, Egypt, September 14, **2015**. https://doi.org/10.2118/175699-MS.

b. Other Refereed Contributions

35) **Sebakhy, K. O**.; Kessel, S.; Monteiro, M. J. (2010) Nanoreactor Templates to Perfectly Tune Sizes and Molecular Weights of Polymer Nanoparticles via RAFT Polymerization. *32nd Australasian Polymer Symposium (APS)*, Coffs Harbor NSW, Australia, November **2010**. (Poster Presentation).

36) **Sebakhy, K. O**.; Vitale, G.; Pereira-Almao, P. (2016) Molybdenum Carbide as a Potential Substitute to Noble Metals in Olefins Hydrogenation at Low Pressures. Designing New Heterogeneous Catalysts, *Faraday Discussion*, London, United Kingdom (UK), April 12-15, **2016**. (Poster Presentation).

37) **Sebakhy, K. O**.; Vitale, G.; Pereira-Almao, P. (2016) Ni-MFI As a Potential Zeolitic Catalyst for Olefins Hydrogenation at Low Pressures*, 18th International Zeolite Conference (IZC)*, Rio de Janeiro, Brazil, June 13-16, **2016**. (Oral Presentation).

38) **Sebakhy, K. O**.; Vitale, G.; Pereira-Almao, P. (2016) Molybdenum Carbide As a Potential Catalyst for Olefins Hydrogenation*, 16 AIChE Annual Meeting*, San Francisco, USA, November 13-18, **2016**. (Oral Presentation).

39) **Sebakhy, K. O**.; Vitale, G.; Pereira-Almao, P. (2017) A Mild Synthetic Route to produce Ni-Aegirine Nanocatalysts for Selective Hydrogenation of Olefinic Molecules, *67th Canadian Chemical Engineering Conference*, Edmonton, Canada, October 22-25, **2017**. (Oral Presentation).

40) **Sebakhy, K. O**. Dispersed Ni-Doped Aegirine Nanocatalysts for the Selective Hydrogenation of Olefinic Molecules. *EuropaCat*, Aachen, Germany, August 18, **2019**. (Oral Presentation).

41) **Sebakhy, K. O**. A green/sustainable organocatalytic pathway for the preparation of esterified supercritical CO_2-dried potato starch products. *The 13th International Natural Gas Conversion Symposium (NGCS13)*, Towards Carbon Neutrality. Xiamen, China, May 24, **2024**. (Oral Presentation).

c. Seminar Presentations

42) **Sebakhy, K.O.** (2014) Novel Heterogeneous Catalysts for Olefins Elimination in Light Petroleum Fractions, *Graduate Student Conference*, Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, Canada.

43) **Sebakhy, K.O.** (2015) Determination and Quantification of Olefins in Light Petroleum Distillates Using Supercritical Fluid Chromatography Coupled with Flame Ionization Detector (SFC-FID), *Group Seminar*, Catalysis for Bitumen Upgrading Group (CBUG), University of Calgary, Calgary, Canada.

DISSERTATION/THESES

1. **Sebakhy, K.O.** (2017) Developing Novel Heterogeneous Catalysts for Olefins Hydrogenation in Light Petroleum Distillates, PhD. Dissertation, University of Calgary, Canada.
2. **Sebakhy, K.O.** (2013) RAFT-Mediated Emulsion Polymerizations in Nanoreactors, Mphil. Thesis, University of Queensland, Australia.
3. **Sebakhy, K.O**. Semiconducting, Gamma-radiation Shielding Properties and Thermal Stability of Polyhydroxyphenylenes, MSc. Thesis, Alexandria University, Egypt.
4. **Sebakhy, K.O.** The Effect of Pulsatile-Flow on the Removal of Copper Ions from Wastewater by Cementation, BSc. Final project, Alexandria University, Egypt.

STUDENTS SUPERVISION & COSUPERVISION

1. Mr. Sabarish Ravi (BSc Thesis, **July 2019**): *Aqueous RAFT-Mediated Polymerization of the Bio-Renewable α-Methylene-γ-Butyrolactone Monomer Via Self-Assembly of Amphiphilic Polymers* (principal supervisor)

2. Mr. Jeroen Rood (BSc Thesis, **July 2019**): *The Effects of Different Solid Carbon Sources on the activity of Molybdenum carbides in the catalytic hydrogenation of Dimeric β-O-4 Lignin Model Compound* (principal supervisor)

3. Mr. Adam Tehenics (BSc Thesis, **June 2020**): *Ammonia Decomposition Over Ruthenium (Ru) Catalysts* (principal supervisor)

4. Mr. Luca Wirner (BSc Thesis, **July 2020**): *Ammonia Decomposition Over Heterogeneous Catalysts* (principal supervisor)

5. Mr. Kenan Azzam (MSc Thesis, **August 2020**): *Study on using Asphaltenes in combination with a polymeric surfactant for Enhanced Oil Recovery* (principal supervisor)

6. Mr. Reint Beuling (MSc Thesis, **August 2020**): A *Study on Dispersed Oxidized Asphaltene in Polyacrylamide Systems for Enhanced Oil Recovery Applications* (principal supervisor)

7. Mr. Paul van Tempel (MSc Thesis, **May 2020**): *Structure-property Studies of Amphiphilic Block Copolymers in Aqueous Solution: Effect of the Polymer Architecture on the Rheology* (co-supervisor)

8. Mr. Federico Lo Moro (MSc Exchange Student, University of Pisa, Italy) (co-supervisor)

9. Mr. Hidde Joosten (BSc Thesis, **June 2019**): *Polymers for Enhanced Oil Recovery: Preparation and Characterization of Amphiphilic Polymers and Property Analysis for Enhanced Oil Recovery* (co-supervisor)

10. Mr. Jesse Heijkoop (MSc Student) (co-supervisor)

11. Mr. Shashwat Sinha (Honors Student, **July 2020**): *RAFT-Mediated Polymerizations in Nanoreactors* (principal supervisor)

12. Ms. Aindrilla Chander (Honors Student, **July 2020**): *Reversible Addition Fragmentation Chain Transfer (RAFT) Polymerization in Supercritical Carbon Dioxide* (principal supervisor)

13. Mr. Friso Versteeg (Current PhD Student, **May 2020**): *RAFT Polymerizations in Supercritical Carbon Dioxide* (co-supervisor)

14. Ms. Lisl Miedema (Current BSc Student, **June 2021**): *Preparation of starch hydrogel products via esterification for versatile applications* (principal supervisor)

15. Ms. Valeria Graur (MSc Student, **September 2021**): *Sustainable Polymers via initiated Chemical Vapour Deposition* (*i*CVD) (principal supervisor)

16. Mr. Maxim Vanderveken (MSc Student, **January 28, 2025**): *Impact of Alginate and Pectin Viscosities on the Dynamics and Rheological Properties of their Corresponding Hydrogels: Insights from Rheology and Solid-State NMR Spectroscopy* (co-supervised with Prof. Flavio Marchesini de Oliveira & Dr. Mustapha El Hariri El Nokab).

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7. Department of Materials, Loughborough University, UK
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