Mohammad Alikarami

Mohammad.alikarami@ucalgary.ca Cell: +1 250 884 2655

SUMMARY OF QUALIFICATIONS

- Three years of experience in biomass pyrolysis, hydrolysis and fermentation.
- Two years of experience in microfluidic design and image processing.
- Three years of experience in electrochemistry, electrocatalysis and electrolyser.
- Three years of experience in catalysis and materials characterization.
- Three years of demonstrated experience in using analytical instruments and teaching analytical chemistry.
- Two years' success in leading and/or facilitating effective operation of multi-disciplinary teams.
- Outstanding organizational, interpersonal and communication skills with demonstrated ability in multitasking and with creative ability to conceptualize and articulate technical solutions.

EDUCATION

PhD. Chemical engineering	2019-2025	University of Calgary
MSc. Chemistry	2016-2019	University of Victoria (UVic), Canada
B.Eng. (1st Class) Chemical Engineering	2016	University of Tehran, Iran

INDUSTRIAL EXPERIENCE

Cofounder and CEO, BioOilSolv inc. **Jan 2023**

Developing green solvent technology by converting forestry waste to solvents to be used in solvent-assisted SAGD

Internship (Junior process engineer) at Nargan Engineers and Constructors **Summer 2015**

- Preparation of process documents (Heat and mass balance, PFD and P & ID data sheets, specifications, cause and effect diagram, ESD block diagram)
- Performing HAZID and HAZOP analysis, PSV load calculation, Hydraulic calculation, Line and vessel sizing, and NPSH calculation
- Gas sweetening and dehydration units simulation in Aspen Hysis and Aspen plus.

Internship at Borzouyeh petrochemical company **Summer 2014**

- Simulating the Benzene and Toluene extraction unit (BTEX) using Aspen Hysys software.

LABORATORY AND TECHNICAL SKILLS

- Electrochemistry: Physical Electrochemistry Methods, Impedance Spectroscopy, Electrodeposition
- Materials synthesis: Impregnation, Co-precipitation, deposition-precipitation, and hydrothermal
- Instruments: HPLC, GC, GC-MS
- Spectroscopy: Raman, UV-Vis, FTIR, XRD
- Microscopy: SEM, TEM, FIB and EBL

- Other characterization techniques: BET, TPR, TPO, TGA
- Programming: C++
- Biochemical techniques: Cell culture, SDS PAGE
- Software: Minitab, Matlab, Matlab simulink, Aspen Hysys, Homer, OriginLab, Comsol, AutoCAD

RESEARCH EXPERIENCE

***PhD student**, Chemical Engineering Department, U of Calgary* **September 2019 – Present**

- Developing a microfluidic system to study solvent-based bitumen recovery using biomass-derived solvents.
- Designing a catalytic pyrolysis reactor for breaking down biomass and measuring reaction products using HPLC and GC-MS.
- Performing fermentation on the produced mixed sugars and solvents.

Chemistry Department, UVic **September 2016 – April 2019**

- Research on glycerol electrooxidation and Oxygen evolution reaction on Nickel based electrocatalysts.
- Research on initial stages of nickel oxidation using dynamic electrochemical impedance spectroscopy.
- Mechanistic study of Hydrogen evolution reaction activity of nickel based electrocatalysts.

Civil Engineering Department, UVic **September 2016 – April 2019**

- Co-Leading the waste-to-energy living-lab study for renewable energy recovery in UVic Campus.
- Attended, marked and gave feedback on presentation of senior Civil Engineering undergraduate's term projects during the UVic environmental policy course (CIVE 315).

Chemical Engineering Department, U of Tehran **September 2014 – September 2016**

- Research on ultra deep desulfurization methods especially reactive adsorption and oxidative desulfurization on Cobalt/Alumina and Cobalt/Ruthenium/Alumina synthesized by sol-gel, impregnation and hydrothermal method.
- Research on synthesis of Graphene via modified hummers method and thermal expansion and synthesis of highly effective Graphene/Titania for oxidative desulfurization.

Teaching Assistantship

- ENCH 617, U of C
- ENCH 421, U of C
- ENCH 429, U of C
- Physical Chemistry Laboratory (CHEM 364), UVic
- Analytical Chemistry Laboratory (CHEM 361), UVic
- Introductory Physical Chemistry (CHEM 245), UVic
- Environmental and Physical Chemistry (CHEM 102), UVic

SELECTED HONORS & AWARDS

- NOVA chemicals graduate award ($ 10, 000)
- University of Calgary excellence award ($ 4000)
- Campus Sustainability Fund ($ 5000)
  University of Victoria, 2017
- Graduate Fellowship
  University of Victoria, 2016 ($ 10, 000)

PUBLICATION

- M. Alikarami, S. Mahdavi, H. Siegler, J. Hu, Pore scale analysis of green solvents for their potential in solvent-based bitumen recovery, Under prepreparation
- M. Alikarami, H. Siegler, J. Hu, Catalytic Pyrolysis of Hog Fuel Biomass to Produce High-quality Bio-oil and Hydrogen, Under prepreparation
- M. Alikarami, T. Holm, D. A. Harrington, A Dynamic Impedance Spectroscopy Study of Initial Stages of Nickel Oxidation, ready for submission to **Electochemica Acta** (2023)
- Bagheri, M., Guevara, Z., Alikarami, M., Kennedy, C. A., & Doluweera, G. (2018). Green growth planning: A multi-factor energy input-output analysis of the Canadian economy. **Energy Economics**, 74, 708-720.
- Bagheri, M., Alivand, M. S., Alikarami, M., Kennedy, C. A., Doluweera, G., & Guevara, Z. (2019). Developing a multiple-criteria decision analysis for green economy transition: a Canadian case study. **Economic Systems Research**, 1-25.

CONFERENCES AND WORKSHOPS

- M. Alikarami, J Sosa, H Siegler, J Hu, Catalytic pyrolysis of Hog fuel biomass for simultaneous production of upgraded biooil and hydrogen, CCEC 2021, Montreal, Oct 2021
- M. Alikarami, T. Holm, D. A. Harrington, Mechanistic Study of Glycerol Electrooxidation on Nickel-based electrodes, **Canopener 2018**, Victoria, BC
- M. Alikarami, T. Holm, D. A. Harrington, Mechanistic Study of Glycerol Electrooxidation on Nickel, **NiElectroCan Meeting**, Simon Fraser University, Apr 2018
- M. Alikarami, T. Holm, D. A. Harrington, Mechanistic Study of Nickel Hydroxide Formation Using Dynamic Impedance Spectroscopy, Canopener, Jun 2017, Norwegian University of Science and Technology, Trondheim, Norway