

# Curriculum Vitae

## Samah Esam-Eldin Warrag

### About:

Budding instructor, seeking assignments with a leading education institute aimed at leveraging knowledge of chemical engineering, chemistry and laboratory skills for students' development. Ability to engage students and utilize effective instructional guidelines to meet the student's learning requirements.

### Personal Information

**Name:** Samah Esam-Eldin Warrag

**Nationality:** United States of America

**Place of Birth:** Gainesville, Florida, United States of America

**Date of Birth:** 08/May/1990

**Marital status:** Married, mother

**Religion:** Muslim

**Current Address:** 3641 I St SE Unit 2A, Auburn, 98002 Washington, The United States

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### Education

- **Bachelor of Science (B.Sc.):** University of Khartoum (U of K) (2006 – 2011), Sudan, B.Sc. (2011) First Class (Honors) in Chemical Engineering
- **Master of Science (M.Sc.):** Texas A&M University (TAMU) (2012 - 2014), Qatar Campus, M.Sc. (2014) in Chemical Engineering
- **Doctor of Philosophy (Ph.D.): Chemistry and chemical engineering,** Eindhoven University of Technology (TU/e), The Netherlands, Eindhoven (2014 – 2018)

### Awards

- **Richard E. Ewing** Award for Excellence in Student Research, Best Graduate Student of the year (2014), Texas A&M University.
- **Fuels and Petrochemicals Division of AIChE,** Harry West Student Poster Award – 3rd Place. *November 3-8, Fall 2013 AIChE Annual Meeting.* San Francisco, California

## Work Experience

- **2023 – Present:** University of Washington Tacoma

### **Part-Time Chemistry Professor**

- **2022 - Present:** Tacoma Community College, Washington.

### **Chemistry Professor**

- **November 2018 to June 2021:** Khalifa University of Science and Technology, United Arab Emirates.

### **Post-Doctoral fellow**

- The research focused on the oil desulfurization, denitrogenization, and dearomatization using novel low volatility solvents from thermodynamic point of view.
  - Peer-reviewing journal papers
  - Job tasks including supervising MSc students, senior design projects.
- **August 2014 to March 2018:** Khalifa University of Science and Technology

### **Visiting Research and Teaching Assistant.**

- The research focused on the purification of oil and gas using novel low volatility solvents.
  - Contribution in teaching advanced thermodynamics for graduate students
- **September 2012 to May 2014:** Texas A&M University, Qatar
- ### **Graduate Research Assistant.**
- The research focused on modeling the phase behavior of the confined fluid in Nano-metric catalysts pores.
- **November 2011 - September 2012:** Texas A&M University at Qatar,

### **Research Assistant**

- I worked at fuel characterization laboratory (*Experimentalist*) in the field of properties optimization of synthetic jet fuels.

## Skills and interests

- Excellent communication skills in two languages (English and Arabic).
- Excellent lab skills (>10 years).
- Hard working and leadership.
- Passionate about teaching

## Patents and Peer-reviewed Publications

- 1- E. E. Elmalik, B. Raza, **Samah E. E. Warrag**, H. Ramadhan, E. Albozri, N. O. Elbashir, "Role of Hydrocarbon Building Blocks on Gas-to-Liquid Derived Synthetic Jet Fuel Characteristics" *Ind. Eng. Chem. Res.* **2014**, 53, 1856–1865.
- 2- **Samah E. E Warrag**, C. J. Peters, M. C. Kroon "Deep Eutectic Solvents for Highly Efficient Separations in Oil and Gas Industries" *Current Opinion in Green and Sustainable Chemistry*, **2017**, 5, 55–60.
- 3- **Samah E. E Warrag**, N. R. Rodriguez, I. M. Nashef, M. Annaland, M. C. Kroon, C. J. Peters, "Separation of Thiophene from Aliphatic Hydrocarbons Using Tetrahexylammonium-Based Deep Eutectic Solvents as Extracting Agents" *Journal of Chemical & Engineering Data*, **2017**, 62, 2911–2919.
- 4- **Samah E. E. Warrag (2018)** "Capturing Impurities from Oil and Gas Using Deep Eutectic Solvents", (**Ph.D. Thesis**), Eindhoven University of Technology, Eindhoven, The Netherlands
- 5- **Samah E. E. Warrag**, M. C. Kroon, C. J. Peters "Mercury Capture from Petroleum Using Deep Eutectic Solvents", **2018**, *Patent ref. no.:* A149669WO.
- 6- **Samah E. E Warrag**, Evgenii O. Fetisov, David B. Harwood, Dannie J.G.P. van Osch, Maaïke C. Kroon, J. Ilja Siepmann, Cor J. Peters "Mercury Capture from Petroleum Using Deep Eutectic Solvents", *Ind. Eng. Chem. Res.* **2018**, 57, 9222–9230
- 7- **Samah E. E Warrag**, C. Pototzki, N. R. Rodriguez, M. Annaland, M. C. Kroon, C. Held, G. Sadowski, C. J. Peters, "Oil Desulfurization Using Deep Eutectic Solvents as Sustainable and Economical Extractants via Liquid-Liquid Extraction: Experimental and PC-SAFT Predictions" *Fluid Phase Equilibria*, **2018**. 467, 33-44
- 8- **Samah E. E Warrag**, I. Adeyemi, N. R. Rodriguez, I. M. Nashef, M. Annaland, M. C. Kroon, C. J. Peters, "Effect of the Type of Ammonium Salt on the Extractive Desulfurization of Fuels using Deep Eutectic Solvents" *Journal of Chemical & Engineering Data*, **2018**. **63**, 1088-1095
- 9- Evgenii O. Fetisov, David B. Harwood, I-Feng William Kuo, **Samah E. E. Warrag**, Maaïke C. Kroon, Cor J. Peters, J. Ilja Siepmann "First-Principles Molecular Dynamics Study of a Deep Eutectic Solvent: Choline Chloride/Urea and Its Mixture with Water" *J. Phys. Chem. B* **2018**, 122, 1245–1254

- 10- **Samah E. E. Warrag**, Ruth D. Alli, Maaïke M. C. Kroon” Liquid-Liquid Equilibrium Measurements for the Extraction of Pyridine and Benzothiazole from *n*-alkanes Using Deep Eutectic Solvents” *Journal of Chemical & Engineering Data*, **2019**, 64, 11, 4882–4890.
- 11- **Samah E. E. Warrag**, Maaïke C. Kroon, “Hydrophobic Deep Eutectic Solvents” book chapter, *Deep Eutectic Solvents: Synthesis, Properties, and Applications*, 2019, Print ISBN:9783527345182, Wiley-VCH Verlag GmbH & Co. KGaA.
- 12- **Samah E. E. Warrag**, Ahmad S. Darwish, Farah O. S. Abuhatab, Idowu A. Adeyemi, Maaïke C. Kroon, Inas M. AlNashef “ Combined Extractive Dearomatization, Desulfurization, and Denitrogenation of Oil Fuels Using Deep Eutectic Solvents: A Parametric Study” *Ind. Eng. Chem. Res.* **2020**, 59, 11723–11733.
- 13- Dannie J. G. P. van Osch, Carin H. J. T. Dietz, **Samah E. E. Warrag**, Maaïke C. Kroon “The Curious Case of Hydrophobic Deep Eutectic Solvents: A Story on the Discovery, Design, and Applications” *ACS Sustainable Chem. Eng.* **2020**, 8, 29, 10591–10612.
- 14- **Samah E.E. Warrag**, Ahmad S. Darwish, Idowu A. Adeyemi, Mohamed K. Hadj-Kali, Maaïke C. Kroon, Inas M. AlNashef “Extraction of pyridine from *n*-alkane mixtures using methyltriphenylphosphonium bromide-based deep eutectic solvents as extractive denitrogenation agents” *Fluid Phase Equilibria*, **2020**, 517, 112622.
- 15- Tarek Lemaoui, Yacine Benguerba, Ahmad S. Darwish, Farah Abu Hatab, **Samah E. E. Warrag**, Maaïke C. Kroon, Inas M. Alnashef “Simultaneous Dearomatization, Desulfurization, and Denitrogenation of Diesel Fuels Using Acidic Deep Eutectic Solvents as Extractive Agents: A Parametric Study” *Separation and Purification Technology*, **2021**, 256, 117861
- 16- Farah Abu Hatab, Ahmad S. Darwish, Tarek Lemaoui, **Samah E.E. Warrag**, Yacine Benguerba, Maaïke C. Kroon, Inas M. AlNashef “Extraction of Thiophene, Pyridine, and Toluene from *n*-decane as Diesel Model Using Betaine-Based Natural Deep Eutectic Solvents” *Journal of Chemical & Engineering Data*, **2020**, 65, 11, 5443–5457
- 17- Darwish, A.S.; **Warrag, S.E.E.**; Lemaoui, T.; Alseiari, M.K.; Hatab, F.A.; Rafay, R.; Alnashef, I.; Rodríguez, J.; Alamoodi, N. Green Extraction of Volatile Fatty Acids from Fermented Wastewater Using Hydrophobic Deep Eutectic Solvents. *Fermentation* **2021**, 7, 226.

## Conference Preprints

- 1- **Samah E.E Warrag**, I. Al-Nuaimi, E. E. Elmalik, N. O. Elbashir “Properties Driven Design of Synthetic Jet Fuels Derived from Natural Gas Via Gas-to-Liquid Technology” *American Chemical Society (ACS)*, Preprint Paper- Division of Energy & Fuels Chemistry; **2012**, 57(2) 796-797
- 2- E. E. Elmalik, R. Hussain, I. Al-Nuaimi, **Samah E. E. Warrag**, N. O. Elbashir, “Effect of carbon number on properties of synthetic gas-to-liquid jet fuel blends” *American Chemical Society (ACS)*, *Preprint Paper- Division of Energy & Fuels Chemistry*; **2013**, 58(1), 18-19