

# SARA AHSAN

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[Webpage](#) | [LinkedIn](#)

Analytical, organized and detail-oriented environmentalist with a background of chemical engineering and 06 years of industrial experience in fertilizer manufacturing. Collaborative team player with an eye for analyzing, processing, documenting research results and summarizing for publications

## EDUCATION

MAY 2020 TO PRESENT

**MASTER OF SCIENCE IN CIVIL ENGINEERING (CORE: WATER RESOURCES/ENVIRONMENTAL ENGINEERING), GPA 4.0/4.0**

FLORIDA ATLANTIC UNIVERSITY, UNITED STATES

### Research Experience

- Developing made-to-order amine-grafted silica (aminosilicas) for capturing CO<sub>2</sub> and H<sub>2</sub>S
- Removal of noxious pollutants such as Volatile Organic Compounds (VOCs) using activated carbon adsorbents
- Comparison of Zeolite-5A molecular sieves and amine-grafted silica for cyclic adsorption-desorption of CO<sub>2</sub> in enclosed environments

### Teaching Experience

Assisted FAU professors with conducting lab activities, helping students with homework during office hours, and marking exams for Introduction to Environmental Engineering (ENV3001C) and Engineering Fundamentals (EGN1002) for 03 semesters

2010 – 2014

**BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING, GPA 3.9/4.0**

UNIVERSITY OF ENGINEERING AND TECHNOLOGY, PAKISTAN

### Projects

- Process design and implementation of 99.5% pure ethanol manufacturing using wheat straw
- Design to separate the mixture of ethanol and water using pressure swing distillation
- Equipment design for (a) Distillation tower, and (b) Shell and Tube Heat Exchanger for cooling reactor outlet

## LIST OF CONFERENCE PAPERS/POSTERS

- **Ahsan, S.**, et. al., developing amine-grafted silica materials for CO<sub>2</sub> capture from enclosed environments, paper presented at: AWMA Annual conference, 2021.
- **Ahsan, S.**, et. al., Aminosilica: A potential candidate for NASA's Carbon Dioxide Removal Assembly Application in the enclosed environments, poster presented at: AWMA Annual conference, 2021.
- Ayub, A., **Ahsan, S.**, Made-to-Order Amine-Grafted Silica Materials for Concurrent Removal of Carbon Dioxide and Water Vapor from Landfill Gas, paper presented at: AWMA Annual conference, 2021.
- Ayub, A., **Ahsan, S.**, Investigating the Adsorption Performance and Stability Attributes of Amine-grafted Silica Materials During Simultaneous Removal of Carbon Dioxide and Water Vapor from Landfill Gas., poster presented at: AWMA Annual conference, 2021.

- **Ahsan, S.**, et. al., Comparing the Performance of Activated Carbon and Silica Adsorbents During Cyclic Adsorption- Desorption of Toluene, poster presented at: AWMA Joint Coastal Plains FL section and Alabama chapter conference, 2020.
- **Ahsan, S.** and Naeem A., Noise abatement that sustained to be fiscal for ammonia complex. Paper presentation at AIChE Annual Meeting (Orlando), 2019
- **Ahsan, S.** and Ayub, A., Neem Coated urea- A fiscal approach for farmers. Oral presentation at AIChE Annual Meeting (Minneapolis), 2017
- **Ahsan, S.**, Akhter, A. and Riaz, Z., Boiler Feed Water Pre-heater failure and High Temperature Shift Converter flooding- ENGRO's Unique Experience and Innovative Ideas. Paper presentation at Advanced Materials and Process Engineering Conference (Karachi), 2014

## WORK EXPERIENCE

JULY 2014-MAY 2020

### PROCESS RESEARCH ENGINEER,

ENGRO FERTILIZERS LIMITED, PAKISTAN

- Devised a fiscal approach for farmers by improvement in Nitrogen Use Efficiency (NUE) of Urea Prills -Azadirachta Indica (Neem) coating on urea
- Evaluated the feasibility of recovery of continuous waste in urea as a fuel in Furnace or Primary Reformer
- Prevented the plant downtime and production loss -Replaced Hydrogen Recovery Unit membrane online by double block and bleed arrangement provision at ammonia plant
- Flooded High Temperature Shift Converter Catalyst resulting in saving millions -Improbable successful dry-out after water ingress due to Boiler Feed Water Pre-Heater failure
- Analyzed cooling water circuits for limiting cooling water exchanger in backend of ammonia plant

## TECHNICAL SKILLS

- Aspen Hysys/Plus- Process simulation
- Fluid flow- Pressure drop calculations
- Fisher/Valspec- Valve sizing
- PHA/MOC/PSSR/FMEA/JSA/HAZOP
- Atmospheric dispersion modeling
- ASQ CSSBB- Cert No. 20725
- MS Office
- Instrucalc- flow meters, PSVs sizing and evaluations

## HONORS & AWARDS

- Recipient of the Axel Henderson Award by the Florida section of AWMA, 2021
- Recipient of the Air Pollution Control and Waste Minimization Research Award by the AWMA, 2021
- First and second rank in 114<sup>th</sup> Annual Conference student poster competition arranged by the AWMA, 2021
- First and second rank in AWMA Joint Coastal Plains/Alabama Chapters& Florida Section poster competition, 2020
- Third rank in AWMA Joint Coastal Plains/Alabama Chapters& Florida Section ECi competition, 2020
- Gold Medal for highest GPA across all campuses in Undergraduate Program, UET Lahore, 2014. (1<sup>st</sup> in 1500 students)