Dhabia M. Al-Mohannadi, PhD

Title: Assistant Professor

Affiliation: Texas A&M University at Qatar

E-mail: Dhabia.al-mohannadi@qatar.tamu.edu

Speaker Biography:

Dhabia Al-Mohannadi, assistant professor of chemical engineering at Texas A&M university at Qatar. Dhabia's research work focuses on the systematic design of sustainable industrial parks under carbon dioxide limits, resource management, and climate policies evaluation. Her work deals with multidisciplinary problems that involve different decision-making processes, engineering and economics. Her research leads to developing analytical tools that can assess flexibility, robustness, reliability of process systems at the design and operational level. Her research resulted in over 30 published works including peer reviewed journals, conference proceedings and book chapters. Dhabia was the co- chair of the 2023 Arab American Frontiers Conference and serves on the board of Qatar Women Engineering Association, the Arab Climate Youth Movement. She is also a member of the Qatar Petroleum Engineering Society, the American Chemical Engineering Institute, the American Chemical Society and Omega Chi Epsilon Honor Society. Dhabia is a graduate of Qatar Rising Leaders Program, 2022 and she obtained her PhD from TAMU in 2018.

Presentation Title: **Eco-industrial Parks for a Sustainable Energy Transition**

Abstract:

To meet the projected increase in global energy demand while addressing sustainability concerns, widespread adoption of renewable energy is inevitable, and the current hydrocarbon system will change. Regions with abundant resources will export energy and petrochemicals to areas in need, with the shipping sector playing a pivotal role in this trade through carriers such as hydrogen, ammonia, methanol, and liquid organic hydrogen carriers. These products must be produced with less energy and carbon footprint, which can be possible through local exchanges and eco-industrial parks. Additionally, carbon dioxide will become a significant maritime trade commodity to meet climate targets, necessitating its transport to regions with appropriate storage and utilization infrastructure through carbon capture utilization and storage (CCUS) and negative emission technologies (NETs). The global impacts of climate change require a shift in energy and petrochemical production, distribution, and consumption. Understanding the role local production and supply chains are crucial and must address uncertainties inherent in the energy transition. Optimization-based models have been developed to aid in designing and planning eco-industrial parks and supply chain network under different CO2 emission mitigation policies. This talk will give a comprehensive approach aims to minimize costs and emissions, shaping a resilient decarbonized system.