**Safety in Energy Transition and Processing System Digitalization**

The efforts to use new energy sources and digital solutions are gaining wider acceptance. There are serious safety concerns that need to be addressed when adopting these alternatives. In evolving energy scenarios, Safety and Security issues are of pivotal importance. These issues are further enhanced with digitalization, from simple equipment failure to failure of process systems (equipment with electronic systems), monitoring and control systems, data encryption systems, and, most recently, software systems. How these evolving safety and security issues are understood and addressed will govern the overall safety and security of the facilities. Therefore, proactively converting this challenge to opportunity and holistically developing digital process safety solutions. Dynamic risk management is one approach to address this challenge. The concept of creating a dynamic risk profile for a processing system encompasses the likelihood and consequences of a given abnormal event. Dynamic risk estimation uses Bayesian theory to update the probability of an event occurrence and a generalized consequence algorithm to obtain the given event's relative consequences. This approach results in a risk function with predictive capabilities and the ability to be updated with time. This talk also touches on the details of system advances from a digitalization perspective and the dynamic risk management approach.

**Bio-brief**

Bio-brief – Dr. Faisal Khan

Dr. Faisal Khan is Mike O'Connor II Chair Professor and Director of Mary Kay O'Connor Process Safety Center, Texas A&M University, College Station, Texas. He is also Director of Ocean Energy Safety Institute (OESI), a US Department of Energy and US Department of Interior funded applied R&D initiative.

Dr. Khan is former Professor and Canada Research Chair (Tier I) of Offshore Safety and Risk Engineering at Memorial University of Newfoundland, Canada. He is the founder of the Centre for Risk Integrity and Safety and Engineering, which have over research 100 research members. His research interest areas include offshore safety, drilling safety, extreme event modelling, asset integrity and risk engineering. He is the recipient of the many National and International Awards. He continues to serve as a subject matter expert to many multinational oil and gas and processing industries on the issue of safety, risk, and asset integrity. He also served as Safety and Risk Advisor to Government of Newfoundland, Canada; Ministry of Environment, Government of Qatar; and Ministry of Environment, Government of Peru. He is Fellow of Canada Academy of Engineer. He has authored over 500 research articles in peer-reviewed journals and mentored 80 PhDs and 85 master students. He is Editor-in-Chief to the Journal of Process Safety & Environmental Protection and Safety in Harsh Environments.