



TNCHE Asia 2025 Conference
" Accelerating Industrial Decarbonization:
Digital-AI and Energy Transformation "
Presenter's Biodata & Abstract



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Title of Presentation : Innovative process solutions for eco-CCUS

Presentation Abstract:

Driven by a combination of regulation and consumer demand, annual greenhouse gas emissions are expected to significantly reduce over the coming few decades. Reduction will be driven by a combination of emissions avoidance and carbon capture, utilization, and storage (CCUS) for hard-to-abate segments or as transitory solution for other sectors.

Today, CO₂ capture is chiefly conducted through chemical absorption, whereby amine-based technologies represent the state of the art in terms of performance, cost, and scalability, while still suffering from solvent toxicity and high energy input. Routes for subsequent utilization or storage of the carbon captured are emerging, with those providing a better trade-off between efficiency and value creation or contained cost being more appealing. In order to foster a wide adoption of these solutions and meet global sustainability targets, economics and ecologic footprint are generally in focus, which could be labelled as eco-capturing and eco-CCUS.

In this talk, we will introduce activities to improve the energy efficiency of amine processes and present a new non-amine process offering superior environmental friendliness and energy management at similar performance. We will close dealing with the potential of carbon capture and mineralization as a versatile platform to produce chemicals for sale or for storage.