Bridging Science and Industry: Data-Driven Strategies for Reliable Operation in High-Corrosivity Environments

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Operating in the energy industry means confronting corrosive species that threaten the reliability and integrity of pipelines and facilities. This presentation transforms that challenge into a journey of innovation, demonstrating how data-driven strategies and lessons learned can turn obstacles into opportunities for progress. Experience has shown that conventional corrosion management approaches are no longer sufficient - advanced, adaptive solutions are required to address real-world complexities.

Bridging academic research with industrial practice, the session highlights how insights into corrosion mechanisms under high-corrosivity conditions are translated into field applications through innovative strategies, i.e. data-driven analysis, chemical treatment optimization, and real-time monitoring dashboards. By connecting scientific understanding with operational experience, the discussion demonstrates how collaboration drives emerging applications and sustainable reliability - truly embodying the spirit of Academic-Industrial Linkage Towards Innovative Emerging Applications.

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Matina Thammachart is a corrosion specialist and manager at PTTEP, where she leads the Materials and Corrosion Section within the Facility Engineering Department. She earned her PhD in corrosion from Heriot-Watt University, UK, before joining PTTEP in 2006 as a corrosion engineer.

With extensive experience across both engineering and operations, Matina has developed expertise in corrosion management, pipeline integrity, and materials engineering. She has played a key role in major projects and responsible for corrosion related PTTEP Engineering General Specifications, while also contributing to cross-functional projects, technical reviews, and peer collaborations.

Actively engaged in technical conferences, workshops, and knowledge-sharing forums, Matina is recognized for driving innovation in corrosion mitigation, reliability and integrity improvement, and asset life extension, reinforcing her central role in PTTEP's technical community.