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Short Biography

Prof Mohini Sain is Ford Motor Canada PERDC Chair for Sustainable Materials, University of Toronto and Chief Technology Advisor of Greennano Technologies Inc. He is also Fellow of Royal Society of Canada and Fellow of Canadian Academy of Engineers.

His efforts catalyzed the inception and growth of the natural composites industry into a \$12 billion global market, and he is the founding director of the world's first research translation centre for biocomposites and biomaterials processing (CBBP). His latest technology transformation of carbon materials led to inception of new start-ups in 2024 including HyCLight Inc.

Title of the Talk: Past Four Decades of Transformative Research Landscape to Commercial Success of Bio-based Functional Composite Products

Mohini Sain and J Tjong

Abstract / Summary

This speech highlights the major research translation efforts of wood fibre plastic composite industry globally starting from early 1980 to the current state of research and commercialization. Today's research in the natural composite has been transformed from macro to quantum state demonstrating the opportunities for the future and successful implementation of the past research once spanned out in a very simple form of mixing biomass residues with thermoplastic and thermoset resin as a binder to replace household goods and other low value products to today's high end battery anodes, supercaps., advanced automotives, defence and cardiac biomedical components exploring nano-scale hydrogels. At present, the global WPC industry revenue crossed over \$20 Billion. When much of it has been in global building construction industry the landscape of commercial application becoming more sophisticated as the technology is advancing from macro to quantum scale due to better understanding of lattice defects of lignocellulosics atoms and their novel exploration. Speech will focus on technology demonstrators in two sectors.