

Title:**Biochar-Based Catalytic Platforms: Turning Organic Waste into Functional Materials for Environmental Decontamination****Presenter:**

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Abstract:

The escalating burden of organic solid wastes (OSW) demands sustainable strategies that transcend conventional disposal methods. This research pioneers a closed-loop “Waste-to-Catalyst-to-Decontamination” paradigm, converting diverse OSW—including sewage sludge, dairy manure, and industrial ferric sludge—into advanced biochar-based catalysts for environmental remediation. Through synergistic engineering of thermal processes (pyrolysis & hydrothermal carbonization (HTC)) and nano-architecture design, we transform waste liabilities into functional materials capable of degrading persistent pollutants, immobilizing heavy metals, and recovering embedded resources.