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Catalytic Energy Conversion and Catalytic Environmental Purification

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Global challenges in energy, environment, and climate change have necessitated a shift toward a low-carbon economy and reduced fossil fuel dependence. Catalytic conversion technology is pivotal to this sustainable transition. Its advancement faces core challenges: balancing activity, selectivity, and stability; limited mechanistic understanding leading to inefficient development; and restrictive reaction conditions. Industrially, bridging the gap between theoretical breakthroughs and scalable, stable engineering solutions remains critical.

This Special Issue offers a comprehensive overview of recent advances in catalysis for environmental and energy applications, covering both heterogeneous and homogeneous systems, and topics of significant scientific and industrial relevance.

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