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Special Issue Reprint

Plasma-Catalysis for Environmental and Energy-Related Applications

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Plasma catalysis has been a topic of research for many years due to its potential for applications in a wide range of chemical, environmental, and energy-related processes. Non-thermal plasma offers an unconventional way to initiate chemical reactions in gas and in liquid due to the energetic electrons generated in the plasma; however, it suffers from low selectivity. The coupling of plasma with catalysis can steer the reactions in the desired direction, thus ensuring improved selectivity towards the target products and reducing unwanted ones. Environmental applications of plasma catalysis have been focused on the removal of various air and water pollutants, while energy applications include hydrogen, syngas and ammonia production.
This Special Issue demonstrates plasma catalysis as a solution to environmental problems caused by the greenhouses gases CO_2 and CH_4, which can be converted to value-added products and fuels, air pollution with stable polycyclic aromatic hydrocarbons and volatile organic compounds, and water pollution with pharmaceutical products.

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