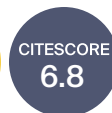




catalysts



Special Issue Reprint

Emissions Control Catalysts

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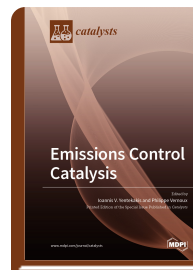
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The important advances achieved over the past years in all technological directions (industry, energy, and health) contributing to human well-being are unfortunately, in many cases, accompanied by a threat to the environment, with photochemical smog, stratospheric ozone depletion, acid rain, global warming, and finally climate change being the most well-known major issues. These are the results of a variety of pollutants emitted through these human activities. The indications show that we are already at a tipping point that might lead to non-linear and sudden environmental change on a global scale. Aiming to tackle these adverse effects in an attempt to mitigate any damage that has already occurred and to ensure that we are heading toward a cleaner (green) and sustainable future, scientists around the world are developing tools and techniques to understand, monitor, protect, and improve the environment. Emissions control catalysis is continuously advancing, providing novel, multifunctional, and optimally promoted using a variety of methods, nano-structured catalytic materials, and strategies (e.g., energy chemicals recycling, cyclic economy) that enable us to effectively control emissions, either of mobile or stationary sources, improving the quality of air (outdoor and indoor) and water and the energy economy. Representative cases include the abatement and/or recycling of CO₂, CO, NO_x, N₂O, NH₃, CH₄, higher hydrocarbons, volatile organic compounds (VOCs), particulate matter, and specific industrial emissions (e.g., SO_x, H₂S, dioxins aromatics, and biogas). The “Emissions Control Catalysis” Special Issue has succeeded in collecting 22 high-quality contributions, included in this MDPI open access book, covering recent research progress in a variety of fields relevant to the above topics and/or applications, mainly on: (i) NO_x catalytic reduction from cars (i.e., TWC) (SCR) emissions; (ii) CO, CH₄, and other hydrocarbons; (iii) CO₂ and CH₄ conversion; (iv) CO₂ utilization combining emissions control with added-value chemicals production.



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