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Designing Catalytic Desulfurization Processes to Prepare Clean Fuels

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Message from the Guest Editors

Sulfur compounds in fuels are the main reason for acid rain and environmental pollution. The combustion of fossil fuels generates emissions of sulfur such as sulfur dioxide (SO_2), which is corrosive and toxic, and as fine particulate matter of metal sulfates. The actual desulfurization method in the world refineries, i.e., hydrodesulfurization, has been adjusted to meet the tight specifications of the current limit imposed by government directives; however, the extreme severe conditions required (high temperature, pressure, and consumption of large amounts of hydrogen) are affecting the economic viability of the process.

Catalytic processes can be used to improve or even replace the actual hydrodesulfurization. Therefore, this Special Issue aims to outline promising catalytic desulfurization technologies to treat fuels, designing novel cost-effective and sustainable processes. These can include biocatalysis, extractive, oxidation, adsorptive processes, etc., with viability for industrial application. Submissions are welcome in the form of original research manuscripts or critical review papers that represent the scientific field.