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Theoretical and Practical Aspects of Hydrogen Production from Hydrocarbons

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Message from the Guest Editors

Dear Colleagues,

This Special Issue addresses the main aspects of hydrogen production from hydrocarbon sources. One of the cost-effective and energy efficient technologies of hydrogen production is steam reforming of methane and other light olefins. The outlet gas stream contains hydrogen, carbon monoxide, and carbon dioxide. On the other hand, the processes of thermal and catalytic pyrolysis of hydrocarbons allow obtaining hydrogen without the emission of carbon dioxide. The only side product here is carbon in the form of nanostructured materials (nanotubes, nanofibers, etc.). Catalytic dehydrogenation of olefins gives alkenes, which are highly demanded monomers for the polymer industry, and pure hydrogen. Another issue connected to the mentioned topics is hydrogen purification (separation from the outlet reaction mixture) using various adsorption and membrane techniques. Both applied and theoretical works are welcome for this Special Issue, including process modeling and reactor design. Research aiming to produce novel catalysts and adsorbents for the mentioned processes is welcome as well.