



Stimulation of catalytic processes: Some new approaches and expected benefits

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The presentation is an overview of some nontraditional approaches to stimulate the occurrence of various endothermic thermocatalytic transformations via application of a strong physical impact. Under consideration is the possibility of direct thermocatalytic transformations of nuclear energy into the energy of chemical substances, storage of solar energy, as well as more sophisticated catalytic dehydrogenation of linear alkanes into alpha-olefins under MW irradiation of suspended catalysts, MW pyrolysis of heavy oil residues, growth of carbon nanowires under MW pyrolysis of heavy alkanes.

The transformation of heavy oil residues under electron beam irradiation, as well as acceleration of light alkane dehydrogenation under IR laser irradiation absorbed by the light olefins as desirable products of the dehydrogenation also is considered.

Directing molecular behavior at solid-liquid interfaces: How solvents and surfaces control reactions

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Catalysis Research Activities in Japan – From the past to the future

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The Catalysis Society of Japan (CSJ) celebrated its 60th anniversary in 2018, just a year before that of IRCELYON. Since the dawn of catalysis research in those years, research activities in the catalysis and related fields have continuously grown up together with the development of the petroleum refining and petrochemical industries. The research results achieved have played significant roles in reducing the energy consumption and environmental loads of these industries. In recent years, the application area of catalysis has been expanded beyond traditional manufacturing industries and headed directly to the solution of social issues, such as more efficient uses of renewable energies or creation of cleaner environment. The present talk introduces the above trends and prospects of catalysis research in Japan.
