Special Issue

Catalysts Deactivation, Poisoning and Regeneration

Message from the Guest Editors

Deactivation can occur via a number of different, often simultaneous, mechanisms, both chemical and physical in nature, such as poisoning, fouling, coking, thermal degradation, loss of active phase, and mechanical failure. A deep comprehension and the modeling of deactivation mechanisms are required to modify a catalyst and/or process in order to limit, for example, the negative impact of contaminants. In fact, several types of poisons must be considered, and the complexity obviously increases along with the increasing use of biomass/waste-derived/residual feedstocks and with requirements for cleaner processes. This Special Issue will be focused on recent advances in the comprehension of some specific deactivation mechanism of heterogeneous catalysts, as well as on novel catalyst formulations with enhanced stability/tolerance under real life operating conditions, and, eventually, on suitable catalyst regeneration strategies that can alleviate the technical and economic risks associated with their possible substitution.

Guest Editors

Dr. Luciana Lisi

Istituto di Ricerche sulla Combustione IRC-CNR, P.le V. Tecchio, 80 - 80125 Napoli, Italy

Dr. Stefano Cimino

Istituto di Ricerche sulla Combustione IRC-CNR, P.le V. Tecchio, 80 - 80125 Napoli, Italy

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Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
catalysts@mdpi.com

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Editor-in-Chief

Prof. Dr. Keith Hohn
Carl R. Ice College of Engineering, Kansas State University, Manhattan, KS, USA

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