Special Issue

Hydrogen Production and Purification

Message from the Guest Editors

Environmental problems encourage humanity to switch to a new energy strategy. One of its main trends is the shift to renewable energy sources. An important part of this strategy is the development of hydrogen energy. Currently, most hydrogen is produced from natural gas and coal, which results in the formation of carbon oxides, primarily CO as co-products. However, even traces of CO poison the catalysts of low-temperature fuel cells, which currently dominate the world market. This necessitates deep hydrogen purification before its use. Such purification is also necessary for the hydrogen production from renewable feedstocks, biomass or bio-alcohols, the conversion of which takes place at lower temperatures and is more selective with respect to CO2.

An effective approach is the use of membrane catalysis for hydrogen production, which not only leads to the production of high-purity hydrogen in one stage, but also leads to an increase in the hydrogen yield due to a shift in thermodynamic equilibrium.

This Special Issue will contain articles on the processes of hydrogen production or purification.

Guest Editors

Prof. Dr. Andrey Yaroslavtsev

N.S. Kurnakov Institute of General and Inorganic Chemistry, Russian Academy of Sciences, Leninsky Prospect 31, 119991 Moscow, Russia

Dr. Iliya Petriev

1. Department of Physics, Kuban State University, 350040 Krasnodar, Russia
2. Federal State Budgetary Institution of Science "Federal Research Centre The Southern Scientific Centre of The RAS", 344000 Rostov-on-Don, Russia

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

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Editor-in-Chief

Prof. Dr. Giancarlo Cravotto
Department of Drug Science and Technology, University of Turin, Via P. Giuria 9, 10125 Turin, Italy

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