Special Issue

Solid State-Supported Porphyrins and Phthalocyanines as Catalysts and Photocatalysts

Message from the Guest Editor

The applications of porphyrins, phthalocyanines, and related macrocycles are intensively studied in many fields. Porphyrinod macrocycles resemble naturally occurring porphyrins and derivatives in both structure and function, and their catalytic and photocatalytic properties are constantly investigated. Porphyrinoids may be used to mimic the activity of cytochrome P450 in selective oxidation of organic molecules, leading to valuable chemicals. As a more robust approach, they could be investigated as a tool for water treatment through the oxidative decomposition of organic pollutants. Upon illumination with light, certain macrocycles may generate reactive oxygen species, including singlet oxygen, which further extends the scope of the catalytic activity. Apart from oxidation reactions, the catalytic activity of porphyrinoid macrocycles also involves the formation of cyclic carbonates from epoxides or coupling reactions of diazo compounds.

Guest Editor

Dr. Michal Kryjewski

Chair and Department of Inorganic and Analytical Chemistry, Poznan University of Medical Sciences, Grunwaldzka 6, 60-780 Poznan, Poland

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

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Editor-in-Chief

Prof. Dr. Maryam Tabrizian
1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada
2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

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