Special Issue

Solid Oxide Fuel Cells (SOFCs): From Design to Applications

Message from the Guest Editor

The production of energy from fossil fuels causes many environmental problems. Useful forms of renewable energy may be directly obtained from solar and wind resources; however, due to their discontinuity, storage of energy in the chemical form is a great challenge today. Among all known types of fuel cells, solid oxide fuel cells (SOFCs) show the highest efficiency and are attractive for storage and regeneration of renewable energy by operating reversibly in solid oxide electrolysis cell (SOEC) and SOFC modes. SOFC with proton-conducting electrolytes are expected to reveal a very high efficiency due to the fact that water is emitted at the cathode, not at the anode, which does not lead to dilution of the fuel. The challenge is to obtain novel electrolyte and electrode materials which are at the same time efficient and resistant to corrosion caused by used gases such as steam and CO2. This Special Issue will focus on the recent progress of preparation novel materials for SOFC/SOEC with proton-conducting electrolytes, their tests, properties, performance of such SOFC SOEC, and their application. Dr hab. Michał Mosiałek

Guest Editor

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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