



Forum Inżynierii Materiałowej

Materials Engineering Forum

- **The Materials Engineering and Metallurgy Committee of the Polish Academy of Sciences**
- **Polish Materials Science Society**

Materials and Technologies for Hydrogen Energy – current Gdańsk Tech perspective

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Materials, and ceramic in particular, for energy conversion, constitute one of the hottest topics in contemporary materials engineering. The multiple properties of these systems are studied starting from structural features through charge transport to their performance in operating devices. The devices such as fuel cells, steam electrolyzers, gas pumps, etc. play important roles in the sustainable energy sector. From the materials engineering viewpoint, many interesting research paths can be named both from the view of basic research and optimization of operating devices. Currently, at the Gdańsk University of Technology, both paths are explored. We focus our research effort on the development of new materials technologies for both solid oxide fuel cells and electrolyzers utilizing oxide ion and proton conductors. We explore new material classes like high entropy and multicomponent oxides as well as novel metal alloys for better performance of these devices. During the talk, the scientific interest of multiple groups working at Gdańsk TECH will be presented with references to our latest works and projects related to hydrogen.