

Next generation solid acid fuel cells and electrolyzers

Initiative: Trilaterale Partnerschaften – Kooperationsvorhaben zwischen Wissenschaftler(inne)n aus der Ukraine, Russland und Deutschland

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Solid acid compounds represent a highly promising class of materials as electrolyzer and fuel cell electrolytes due to their remarkably high proton conductivity at intermediate temperatures (100-400°C). Since early work demonstrated the viability of the solid acid compound CsH_2PO_4 , as a fuel cell electrolyte very little work has been done in this field and it is considered wide open for investigation. At this time, the two key factors preventing a breakthrough of CsH_2PO_4 based fuel cells are 1. the limited phase stability of the compound due to dehydration and 2. the reactivity with non-precious metal catalysts. The goal of the proposed trilateral collaboration is to increase the window of phase stability of solid acid compounds and to improve the compatibility towards non-precious metal catalysts. A successful outcome of the trilateral partnership will enable many new applications for fuel cells and electrolyzers and present the foundation for further detailed and continued investigations.

Projektbeteiligte

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