

Novel Polymer Electrolyte Membranes for Fuel Cell Application

Initiative: Zwischen Europa und Orient - Mittelasien/Kaukasus im Fokus der Wissenschaft

Ausschreibung: Ausschreibung: Strukturell orientierte Maßnahmen

Bewilligung: 26.07.2017

Laufzeit: 3 Jahre

The research to be conducted by the newly established junior research group in Tbilisi will focus on the development and investigation of new hydrocarbon based polymer electrolyte membranes for fuel cell application. Fuel cells are one of the most promising technologies for delivering clean and efficient power for automotive and stationary applications. Especially big cities with economic growth, like the capital Tbilisi, are strongly affected by increased pollution of the atmosphere. Implementing clean energy technologies, amongst them fuel cells, has major importance to reduce pollution. Experiments will be performed by a benchtop NMR needed for analyzing the molecular structures of synthesized monomers and polymers and having key importance in the synthetic part of the project. Furthermore, the apparatus will be involved in teaching of the course Instrumental Methods of Analysis-II covering the use of NMR techniques in organic and polymer chemistry. The Agricultural University of Georgia will give free access to various analytical equipment (FTIR, GPC, DSC, HPLC, GC, etc.) to facilitate the success of the project and development of the junior research group. Part of the investigations (proton conductivity, PFG NMR, small-angle-X-ray-scattering) will be carried out at the Max Planck Institute for Solid State Research (Stuttgart, Germany). The membranes cast from the selected new materials will be tested in the fuel cells by FuMaTech GmbH (Bietigheim-Bissingen, Germany).

Projektbeteiligte

Priv.-Doz. Dr. Klaus-Dieter Kreuer

Max-Planck-Institut für
Festkörperforschung
Abteilung Physikalische Festkörperchemie
Stuttgart

Prof. Dr. Giorgi Titvinidze

Agricultural University of Georgia
Institute of Chemistry and Molecular Engineering
Tbilisi
Georgien

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