

Experimental report

11/09/2026

Proposal: 9-11-2087

Council: 10/2022

Title: New chemistry for a high-temperature resistant ionomer layer in membrane electrode assembly (MEA) for fuel cell

Research area: Materials

This proposal is a new proposal

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Local contacts: Jacques OLLIVIER

Samples: nafion
(C42H62S4)_n

Instrument	Requested days	Allocated days	From	To
IN5	3	3	14/04/2023	18/04/2023

Abstract:

Membrane electrode assemblies (MEAs) are essential components of fuel cells, which use the reaction between hydrogen and oxygen to generate electricity. Although significant progress has already been made in terms of overall performance, research is directed at improving efficiency by developing MEA systems that operate at high temperatures. Here we will use neutron spectroscopy to study how the transport properties effects in new MEA formulations designed for high temperature operation to aid in their evaluation for fuel cell performance. Neutron data will be benchmarked against NMR data.

K. Smith, A. Gallastegui, Z. Yu, et al. "Correlated Polymer-Proton Hopping Enables Water-Independent Fast Proton Transport in Poly(Ionic Liquid) Membranes." *Advanced Science* (2026): e77430. <https://doi.org/10.1002/adv.77430>