

Abstract Submitted
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Proton Conducting Membranes from Fluorinated Poly(Isoprene)-*block*-Sulphonated Poly(Styrene): A Structure Vs Property Study.¹ AKINBODE ISAACS-SODEYE, SAMUEL GIDO, University of Massachusetts Amherst, TIANZI HUANG, JIMMY MAYS, University of Tennessee Knoxville — Proton Conducting Membranes used in Fuel Cells typically comprise of ionomers, having hydrophobic backbones and hydrophilic acid bearing side chains. Cell Efficiencies are limited by membrane morphology amongst other things. This study is a step towards tuning the morphology and ultimately properties of our relatively cheaper fluorinated Poly(Isoprene)-*block*-sulphonated Poly(Styrene) block copolymer ionomer membranes, made from post polymerization modified PS-PI. Work on random and graft copolymer ionomers especially NafionTM have shown that morphologies of membranes from such materials vary with temperature, water content, counterion and No. of acid groups per chain etc. Analysis of our membranes using USAXS and SANS aims to explore the above mentioned variables; furthermore methanol permeability and proton conductivity will be studied using a diffusion Cell and impedance spectroscopy respectively.

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