

Abstract Submitted
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Ion transport in precisely controlled phosphonated polymers

SANGHEE JANG, MOON JEONG PARK, Pohang Univ of Sci Tech — There is a great demand for the development of new polymer electrolytes that show enhanced ion conductivity under high temperature and low humidity conditions. In this regard, polymers carrying phosphonic acid groups have been attracting attention owing to several beneficial features of phosphonic acid, i.e., high degree of self-dissociation and amphoteric characteristics. This can lead to effective hydrogen bonding interactions and thereby facilitate fast proton transport under dry conditions. In this study, we synthesize a series of phosphonated polymers with controlled phosphonic acid concentration. In particular, by precisely controlling the position of phosphonic acid groups, we show the modulation of proton transport properties at the same ion contents. Morphology analysis of the synthesized polymers has also been performed by combining small-angle and wide-angle X-ray scattering experiments..

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