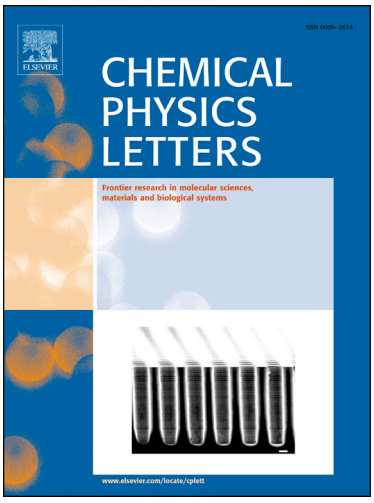

Research paper

Conductivity of Gel Polymer Electrolytes Doped with Solutions of Phosphonic Acid or Protic Ionic Liquids

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Conductivity of Gel Polymer Electrolytes Doped with Solutions of Phosphonic Acid or Protic Ionic Liquids

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(Additional Supporting Information may be found in the online version of this article.)

ABSTRACT

The proton-conducting gel electrolytes (PCGEs) based on PMMA, PVdF or PVdF-HFP doped with solutions of phosphonic acid or ammonium based protic ionic liquids (PILs) in DMF have been synthesized. Rather high values of the conductivity (10^{-4} – 10^{-3} S·cm^{-1}) have been reached at low dopant concentrations (up to 1 mol l^{-1}). The influence of the nature of both polymeric matrix and dopant as well as dopant concentration on the conductivity values was discussed. It was established that the dependence of conductivity on the nature of dopant, but not the polymeric matrix, was more pronounced.