Electronic Supplementary Information (ESI)

Effect of ionic liquid on the crystallization kinetics behaviour of polymer poly(ethylene oxide)

S. K. Chaurasia, R.K. Singh* and S. Chandra*

Department of Physics, Banaras Hindu University, Varanasi-221005, India

Tel: +91-542-2307308; Fax: +91-542-2368390

*Corresponding author Email: *rksingh_17@rediffmail.com, **sureshchandra_bhu@yahoo.co.in
**Fig. S1** \( \ln K^{1/n} \) vs. \( 1/T_c \) plot for evaluating the isothermal crystallization activation energy for PEO+20wt.%BMIMPF\(_6\) film.

**Fig. S2** \( \ln (\phi/T_P^2) \) vs. \( 1/T_P \) plot for evaluating the non-isothermal crystallization activation energy for PEO+20 wt.% BMIMPF\(_6\) film.
Calculation of degree of crystallinity:

The relative degree of crystallinity of PEO and for PEO+x wt.% BMIMPF$_6$ for different values of ‘x’ is calculated from the melting enthalpy values obtained from the area of the melting curves for PEO in DSC thermograms as shown in Fig. S1 using the following equation:

$$\text{Degree of crystallinity} = \left( \frac{\Delta H_m}{\Delta H_m^o} \right) \times 100\%$$

where, $\Delta H_m$ is the melting enthalpy of PEO+x wt.% BMIMPF$_6$ films and $\Delta H_m^o = 213.7$ J/g is melting enthalpy of 100% crystalline PEO.

**Fig. S3** DSC thermograms of PEO+xwt.% BMIMPF$_6$ films for (a) x=0 (b) x=5 (c) x=10 (d) x=15 and (e) x=20. The respective values of $\Delta H_m$ obtained by DSC thermograms are 162, 130, 125, 112, 92 J/g.