**Dielectric properties of Poly (acrylonitrile) [PAN] -based lithium iron conducting polymer electrolytes at high frequencies**

Poly (acrylonitrile) [PAN], ethylene carbonate (EC), propylene carbonate (PC) and lithium trifluoromethane sulfonate (LiCF3 SO3) were vacuum dried at 10-3 pa at elevated temperatures for two days before the sample preparation. Appropriate weight ratios of the above components were weighed and the samples of different compositions were weighed and the samples of different compositions were mixed well at room temperature and then heated at 120 $^{o}$C while stirring for one hour. The hot transparent get electrolyte membrane was sandwiched between two glass plates and left for drying in a nitrogen atmosphere for a few hours.

The electrical measurements were made on pure samples, liquid intraction of $Li^{+}$ cations with ether oxygen atoms of C=O group of PC and C=N group of PAN by weak electrostatic forces is a dominant feature in these gel electrolytes. Dielectric spectra further suggest that PAN makes a contribution to the bulk conductivity via weak electrostatic forces between PAN and $Li^{+}$ cations through C= N arm making dipoles.