ABSTRACT
There is a growing interest in semiconducting polymers because of their excellent solution processability. However, the mechanisms of the charge transport in semiconducting polymer films is rather complicated since the most of the polymer films are amorphous or semicrystalline and contains some disorders originated from the chemical impurities and the structural defects. In this talk, I will present a recent review of high mobility semiconducting polymers as well as the charge transport characteristics based on charge modulation spectroscopy (CMS) [1]. Furthermore, I will talk recent studies of the polymer light-emitting devices and transistors which use ionic liquids for realizing high charge density organic optoelectronic devices.