

Correlation of Hole Drift Mobility and Hole Diffusion in PTPB Polymer Films

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Time of flight drift mobility measurements are made in thin films of the trap-free hole transport PTPB configured in parallel plate capacitor geometry. Parallel electrochemical measurements on PTPB are made on Pt disk electrodes and Au interdigitated arrays (IDAs) immersed in an inert electrolyte bath. Electrochemical experiments of partially oxidized PTPB on Au IDAs are also made in the presence of plasticizing solvent vapors alone. The latter measurements lead to solid state hole diffusion coefficients. The hole drift mobilities and hole diffusion coefficients are well correlated by the Einstein coefficient over a range of temperature. Vapor doping experiments on PTPB show that hole mobilities are insensitive to effective medium dielectric constant.

Biography

Dr. John S. Facci is a member of the senior research staff in the Wilson Center for Reseacrch and technology at the Xerox Corporation. Research interests are in the areas of electrochemistry, hopping transport, photoreceptors, charging devices and color marking.