Electrical study of poly(3-methylthiopene)

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Schottky diodes resulting from an intimate contact of aluminum on electro-deposited poly(3-methylthiopene), PMeT, have been studied by admittance spectroscopy, capacitance-voltage measurements and voltaic and optically-induced current and capacitance transients.

The loss-tangents ($1/\omega$RC as a function of probing frequency ω) show the existence of interface states that can be removed by vacuum annealing. Furthermore, the CV curves measured after placing the device prolongedly at large voltages contradict the idea of movement of the dopant ions. Finally, the current and capacitance transients show non-exponential behavior, $\exp(-\sqrt{t/\tau})$, indicating complicated effects of the bias voltage.