

## **I-V characteristics of hybrid optoelectronic devices based on conducting polymers and nanostructured ZnO.**

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### **Abstract:**

In this work, various ITO/Hole transporting layer/ Active layer/ V<sub>2</sub>O<sub>5</sub>/ Al optoelectronic devices with different conjugated polymers as active layers and hole transporting layers were fabricated. The active layer was fabricated by mixing nanostructured ZnO powders and two substituted polythiophenes and then deposited by spincoating. Whereas, the hole transporting layer is based on spincoated polyaniline and polytoluidine deposited on ITO coated glass. To complete the optoelectronic devices, a thin layer of V<sub>2</sub>O<sub>5</sub> (serving as a buffer layer) was deposited by spincoating followed by a thermal evaporation of Aluminium circular top contact. The electrical measurements (Current – Voltage characteristics) were performed on different devices in the dark and under illumination, using a Keithley picoamperemeter and microvoltmeter controlled by a computer via a GPIB card. A rectifying behaviour was observed in these structures. The results of these measurements will be presented and discussed.