Conductive polymer-based (CPs) and carbon nanotubes (CNTs) nanostructured materials are being increasingly used for several applications such as batteries, sensors, capacitors, etc. The CPs main characteristic is its electrical conductivity can be regulated in wide range, through interactions with electron donors and receivers, which makes them attractive as transducers or active materials. Among the different conducting polymers the Polypyrrole (PPy) is one of the most studied in the development of sensors and capacitors. In turn, the CNTs have the ability to promote electron transfer reactions, increase reaction speed and decreased oxidation potentials. Thus, CPs composites with CNTs has been developed and exhibit synergistic properties such as increases of capacitance, sensitivity, and redox behavior[1,2]

In this work, self-assembled (SA) films based on PPy and CNTs composites were produced and characterized. Initially, polypyrrole (PPy) and its respective composites with functionalized carbon nanotubes (MWCNT) were chemically polymerized using ammonium persulfate as oxidant. Nanostructured films were produced by SA technique with the deposition of alternated layers of Polystyrene Sulfonated. The films growth were characterized by Cyclic Voltametry (CV), UV-vis and Scannig Electron Microscopy (SEM). It was observed that the film with the composite (PPy-MWCNT/PSS) presented higher current intensities, with decreases of its residual current, when compared with its unmodified counterpart

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**References:**


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