

## Immobilization of Electroactive Species into Polyaniline/Metal Oxide Composite Films

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Conducting polymers have been the subject for the past decades in order to be used in many potential applications, such as sensors, electrocatalysis, displays, super capacitors and batteries. The properties of the conducting polymers vary based on the employed synthesis parameters and thus can be controlled and optimized for a certain application. Composite electrodes of conducting polymers/metals oxides can improve the stability and conductivity of the polymers.

Ferrocyanide with its negative charge has been immobilized into polyaniline films which have been electrochemically synthesized by oxidative coupling carrying positive charges. The immobilization process occurs via coulombic attraction between the positive charge of the polymer chains and the negative charge of the electroactive species. The composite polymer films were characterized by using cyclic voltammetry, impedance spectroscopy and scanning electron microscopy. Such novel way of immobilization enhances the sensitivity of the conducting polymer films toward various potential applications such as sensors.

### Biography:

Dr. Al-Betar is an assistant professor in the Chemistry Department at King Fahd University of Petroleum and Minerals in Dhahran, Saudi Arabia. He obtained his B.S. degree and M.S. degree in kinetic chemistry from King Fahd University of Petroleum and Minerals. He graduated in 2012 from Memorial University in Canada with a Ph.D. degree in physical chemistry. His research is concerned with electrochemistry of conducting polymers at composite electrodes. He is also interested in teaching chemistry for youth using exciting approaches, as well as, training instructors to deliver exciting science to youth. He led the talented program for gifted students at King Fahd University of Petroleum and Minerals during summer sessions.