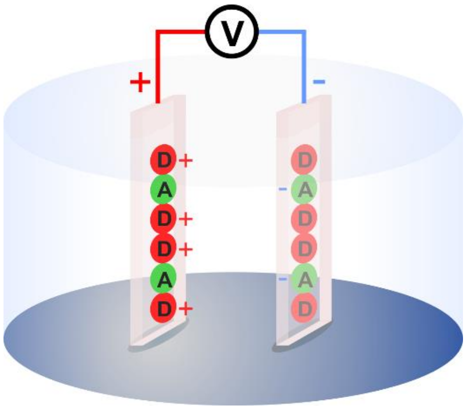

The ongoing interests in fabrication of polymer based materials suitable for application as electroactive materials for electrodes of electrochemical capacitors (ECs), also known as supercapacitors (SC) or ultracapacitors (UC), are mainly focused on conducting polymer materials with the limited maximum of operating voltage. Currently available SC devices reveal several favorable properties, including long lifetime during charging and discharging and broad operating temperature ranges. Therefore, their use becomes widespread in intelligent energy networks (smart grids), aircrafts, and electrical vehicles. However, compared to batteries, they still face some challenges in terms of low energy density. A new SC electrode materials with ambipolar nature, i.e., indicating electrochemical activity in both the positive and negative potential range, should provide the conductivity extending over a very wide voltage range. This property is highly desirable for devising and fabricating novel energy storage materials with high capacity and energy density. Conducting ambipolar polymers are electroactive in both the negative and positive potential range. This unique ambipolarity of a conducting electrode material introduces the desired high operation voltage to the SC device. Favorable structures of ambipolar polymers containing conducting donor units, conjugated with conducting acceptor units, are responsible for enhanced charge conduction in a broad potential range. Hence, they are very promising for preparation of high-performance SCs in terms of energy high density and power density. Therefore, studies of their stability under the applied potential conditions are essential for understanding the mechanism of their operation, and then improving their electrochemical properties.