

## Electrochemical characterization of the Poly(2, 2'-Bithiophene-co-Pyrene) Functionalized Single-Walled Carbon Nanotubes Films and Their Applications in Supercapacitors Field

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The performance of the poly(2, 2'-bithiophene-co-pyrene) copolymer doped with bis(2-ethyl hexyl) sulfosuccinate sodium (AOT) anions [(PBTh-Py)<sup>+</sup>AOT<sup>-</sup>] and its composite with single-walled carbon nanotubes (SWNTs) [(PBTh-Py)<sup>+</sup>AOT<sup>-</sup>/SWNTs] as active materials for the electrodes of symmetrical supercapacitors is demonstrated in this work. Using cyclic voltammetry, the influence of the electrolyte concentration and the different cations on the oxidation and reduction processes at the electrolyte/electrode interface is reported. Using charge-discharge galvanostatic measurements in the case of the symmetrical-supercapacitors having as electrode active materials, the (PBTh-Py)<sup>+</sup>AOT<sup>-</sup> copolymer and the (PBTh-Py)<sup>+</sup>AOT<sup>-</sup>/SWNTs composite, values of the specific capacitance equal with 11.5 and 59 F g<sup>-1</sup>, respectively, for current densities of 100 mA g<sup>-1</sup>, were reported.

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**Keywords:** carbon nanotubes, copolymers, cyclic voltammetry

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