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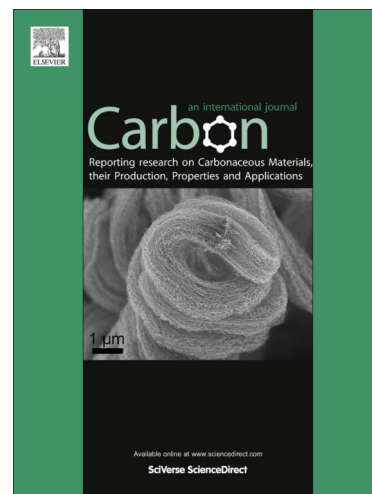
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**Influence of quinone grafting via Friedel-Crafts reaction on carbon porous structure and supercapacitor performance**

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**ABSTRACT**

High specific surface area carbon has been modified with para-benzoquinone (p-BQ) via Friedel-Crafts reaction catalyzed by Iron (III) chloride followed by oxidation, in order to explore alternative strategies for obtaining high energy density supercapacitor materials by the combination of the double layer capacitance of carbons with the redox pseudocapacitance of the organic redox couple added on the carbon surface.

Suitable structural and physicochemical characterization proved the formation of covalent bonds between carbon and p-BQ, and the electrochemical characterization showed a significant increase in gravimetric capacitance values after the addition of p-BQ which is maintained even after many cycles.

This gravimetric capacitance increase was not only due to the redox reactions of p-BQ, but also to an increased double layer capacitance after p-BQ modification even when the BET surface area decreases after modification. A correlation with the pore structure of carbons

showed that the increased double layer capacitance can be attributed to a better matching of

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