Nanoporous carbon electrodes with graphene–like structure for supercapacitors

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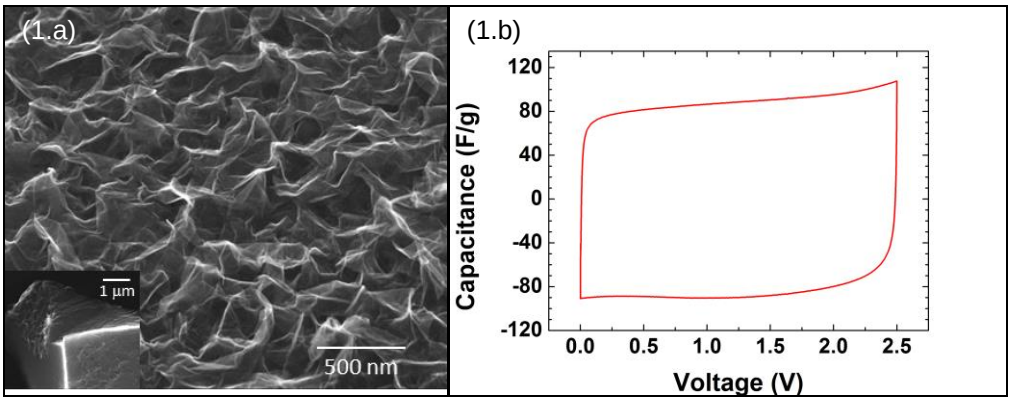
Abstract

Nanoporous carbons with narrow and tuneable pore size and few–layer graphene microstructure have been produced by activation of lignocellulose-rich materials with KOH. For different contents of KOH relative to carbon, the pore size and specific surface area are highly influenced by the crystal size and defect concentration of the graphene layer. The results also manifest the competition between the oxidation of carbon by KOH and the intriguing C–C re–organization provoked by the chemical activation. Studies related to the material properties of the most adapted pore size and the electrolyte characteristics as well as their effect on its capacitive properties in symmetric double–layer capacitors[1] were assessed.

References

[1] R. Kötz and M. Carlen, Electrochimica Acta, **45** (2000) 2483-2498.

Figures



(1.a) SEM images of a nanoporous activated carbon showing few-layer graphene structure.
(1.b) Cyclic voltammetry at 5 $mV.s^{-1}$ for a nanoporous carbon in 1.5 M NEt_4BF_4 in ACN electrolyte.

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