Electronic Supplementary Information for

Nanoimprint lithography of nanoporous carbon materials for micro-supercapacitor architectures

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S.1. Methods

Leakage current calculation

Leakage current is calculated measuring the self-discharge in open circuit after pre-charging the micro-EDLC to 1 V. The corresponding leakage current was estimated using the following equation:

$$I_{leak} = C \cdot \frac{dV}{dt} \quad (1)$$

Where I_{leak} is the leakage current, C is the capacitance obtained from the CV curves dV/dt is the discharge rate.

Energy and Power Densities

The electrochemical performance of the micro-EDLC devices was based on galvanostatic charge-discharge measurements. The volumetric energy density ($E_{vol.}$) was obtained from equation (2):

$$E_{vol.} = \frac{A_{dis} \cdot I}{V_{IDE} \cdot 3600} \quad (2)$$

where $A_{dis.}$ is the area of the integrated discharge curve and I the applied current. V_{IDE} is the complete volume of the interdigital electrodes.

The Volumetric power density (P) is calculated from the energy density (E_{vol}) and the discharge time t_{dis}:

$$P_{vol.} = \frac{E_{vol}}{t_{dis}} \quad (3)$$

S.2. Supplementary Figures

S.1

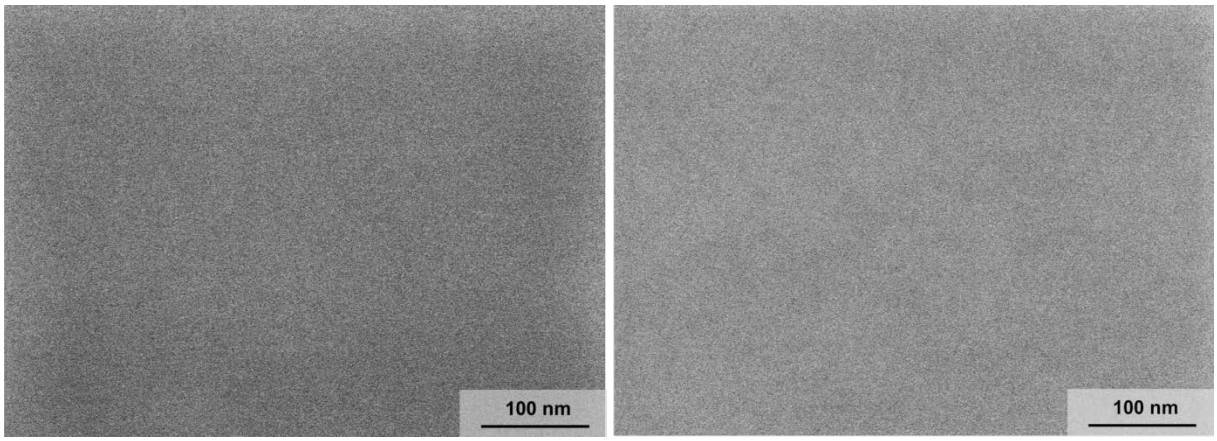

Figure S.1 - SEM images of a C_F pyrolyzed at 900 °C (left) and an AC_F-30 (right).

S.2

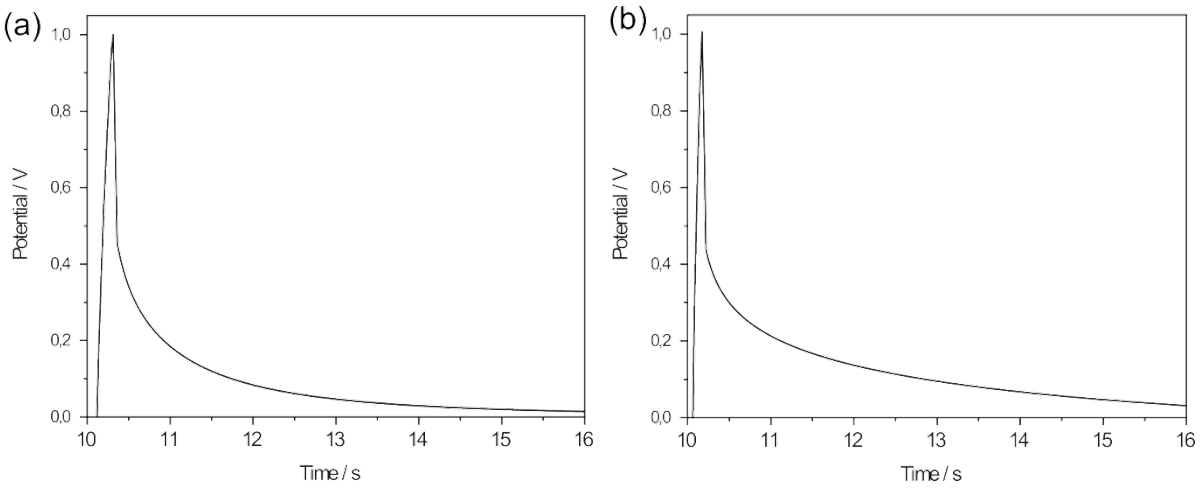

Figure S.2 – Galvanostatic charge/discharge curves of $C_{IDE\text{-}0,5}$ (a) and N-$C_{IDE\text{-}0,5}$ (b) measured with a current density of 1 mA cm^{-2}.

S.3

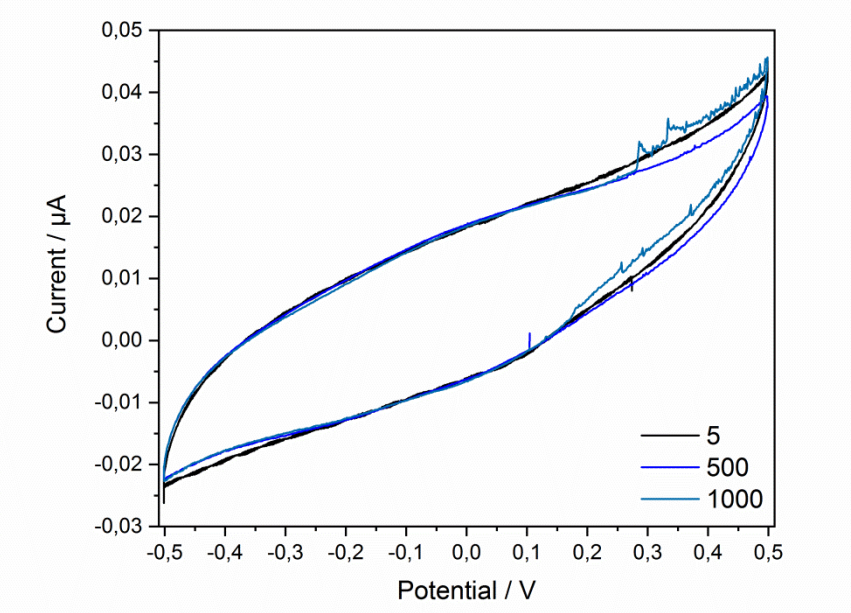

Figure S.3 – Cyclic voltammograms of N-$C_{IDE\text{-}0,5}$ at different cycle numbers (5; 500; 1000) measured at a scan rate of 10 mV s^{-1}.

S.4

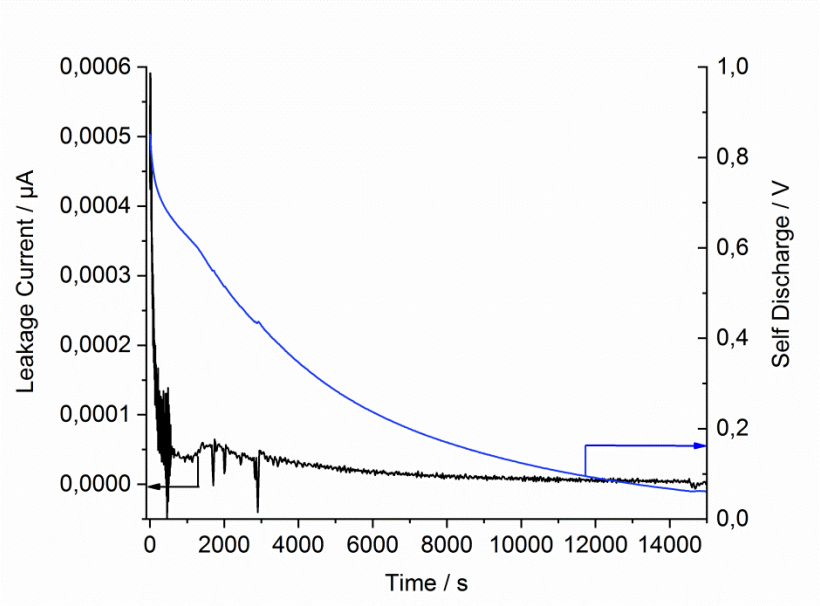

Figure S.4 – Leakage current and self-discharge characteristics of a N-$C_{IDE\text{-}0,5}$ after charging to 1 V and measuring the self-discharge at open circuit.

At the beginning a high leakage current is observed. After 4.000 seconds the current regulates to a constant value of $1{,}5 \cdot 10^{-5}$ µA. The leakage current is probably caused by residual carbon between the lines of the two electrodes. An increase of the spacing between the fingers could reduce these effects.