Dense high-aspect ratio 3D carbon pillars on interdigitated microelectrode arrays - DTU Orbit (08/11/2017)

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In this work we present high-aspect ratio carbon pillars (1.4 µm in diameter and ~11 µm in height) on top of interdigitated electrode arrays to be used for electrochemical applications. For this purpose, different types of 2D and 3D pyrolysed carbon structures were fabricated and characterised including surface- and microstructure, electrical and electrochemical properties. A pre-treatment of oxidised Si wafers is introduced to eliminate electrode delamination and ensure structure stability in water during long time-experiments. Additionally, a heat treatment method is reported for regeneration of pyrolysed carbon films with increased film resistance due to oxidation during storage.

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