

Master Thesis project in Microtechnology and Nanoscience

Adjusting the Surface Charge of Micro-Supercapacitor Electrodes

As mobile devices continue to have higher performance requirements, there is an increasing demand for novel and integrated energy storage applications to accommodate increasing power consumption. One possible solution to fulfil future energy storage requirements is through the use of micro-supercapacitors (MSCs). However, the maximum operating voltage limit of a single MSC unit is limited in a range of 0.8 to 3 V, depending on the type of electrolyte employed. There is of great interest to extend the voltage limit of MSCs so to broaden their application field.

The surface charge of MSC electrodes plays an important role in deciding the usable voltage window of a device with a given electrolyte. The objective of this thesis is to develop a method for adjusting the surface charge of the positive and negative electrodes of MSC devices, with a focus on CNTs-based electrodes. The thesis will involve design, fabrication and characterization of MSCs on wafer scale.

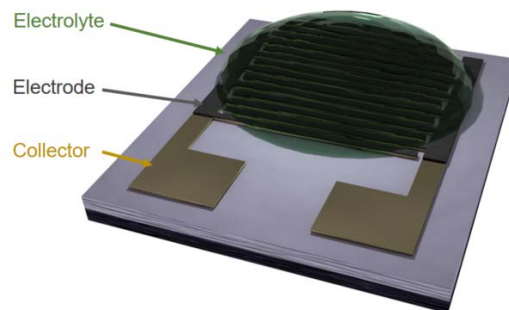


Figure 1. Micro-supercapacitor fabricated in a wafer scale process.

Qualifications

A suitable background for this project would be a Master's program in Chemistry, Nanotechnology, Physics, Electrical Engineering, Microelectronics, or related subject. Knowledge in electrochemistry, cleanroom experience is a plus.

Application

Send an email to one of the following contact persons.

Contact

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