Wrocław University of Technology

Institute of Materials Science and Applied Mechanics

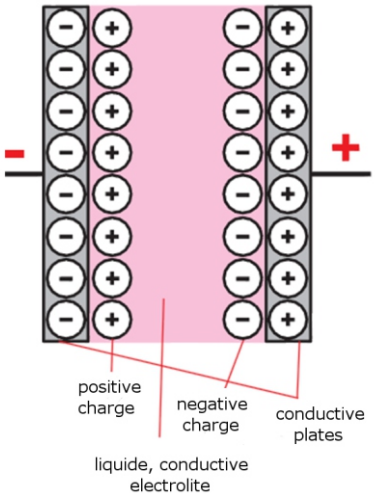
CONTINUUM MECHANICS DIVISION

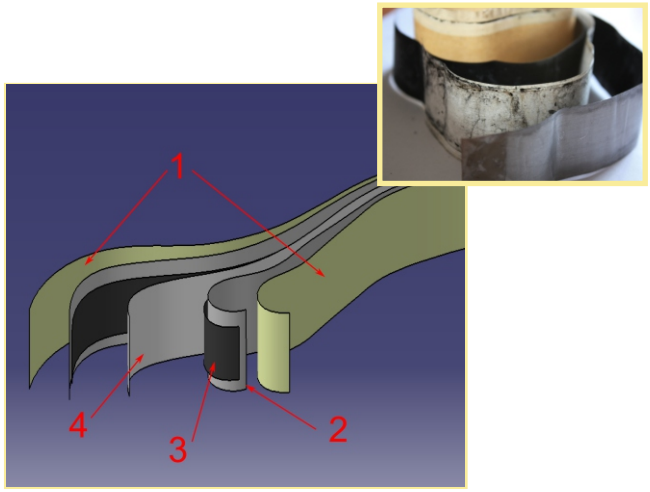
ULTRACAPACITORS EMBEDDED IN CONSTRUCTIONS

Energy storage in ultracapacitors

Almost everything we use requires a battery (small computers, mobile phones, flashlights, electric cars, small personal devices such as mp3 players, GPS etc.).

Our recent work in the Continuum Mechanics Division delivers a new type of the most economically viable alternative to conventional batteries in more than 200 years - the ultracapacitor, which is both a battery and a capacitor.





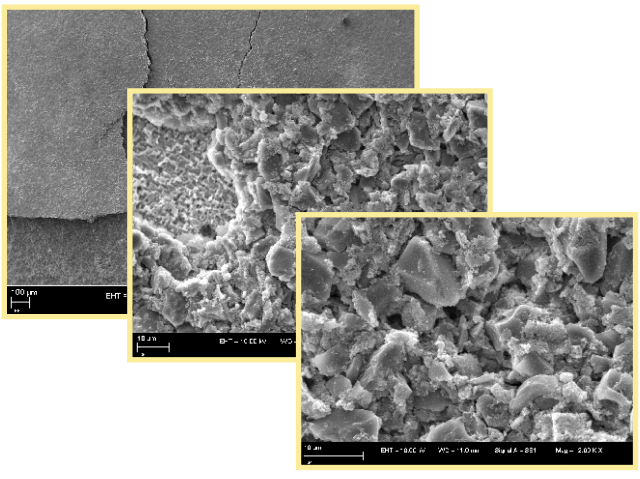
Thin layer ultracapacitor:
1 - insulation, 2 - conductive foil,
3 - nano-carbon, 4 - separator

Thin layer embedded ultracapacitors

Our group has been focused on energy harvesting from different sources for several years. Energy harvesting involves the need to collect the produced energy. That is why we decided to start working on a new type of ultracapacitors, which have the form of thin layer, in contrast to market available ultracapacitors which usually have cylindrical shape. This new type is built in a traditional way, however the outer cover is specially designed to protect the electrolyte from drying.

Special carbon structure

Conductive foils in our ultracapacitors are covered with a specially selected carbon structure, which provides a large surface contact area with the electrolyte and increases its capacity. The use of appropriate manufacturing technology and selection of a special type of electrolyte for the ultracapacitor allows us to create a new type of ultracapacitor in the form of very thin ribbons.



Ul. Smoluchowskiego 25 Wroclaw 50-370 Poland, tel. +48(71) 320-27-65