



Purpose and aim

- The purpose is to improve performance of carbon-nanotubes based supercapacitors, namely minimise self-discharge with hydrogen (H₂) and nitrogen (N₂) annealing.
- The aim is to identify optimal parameters of the H₂ + N₂ annealing, such as temperature, duration, concentration of H₂ and N₂ gases.

Results, important findings

- The project is ongoing, with expected finishing date on 30.06.2024.
- For regular non-annealed electrode, 91% of initial 2.7 V charge is discharged after 16 hrs.
- So far, it is found that the optimal temperature for H₂ + N₂ annealing is 500 °C, decreasing self-discharge significantly, with 47% of initial charge being discharged.
- Currently, work is being done to find optimal annealing duration, which could be between 20 and 60 minutes.

Electrode optimisation towards lowering the self-discharge of supercapacitors



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