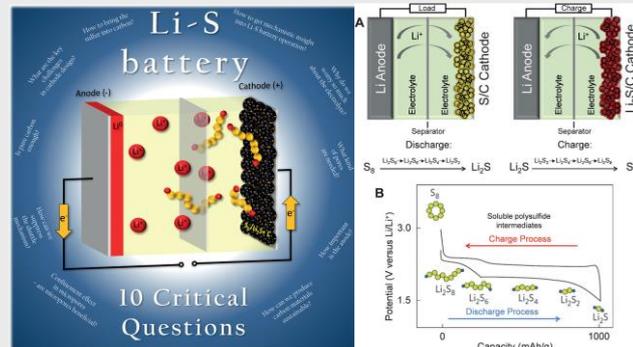


Lithium–sulfur batteries are considered one of the most promising next-generation energy storage systems due to their high theoretical energy density and the natural abundance of sulfur. However, challenges such as polysulfide shuttle, poor conductivity, and volume expansion limit their practical implementation. This project aims to address these challenges by developing chemically tailored, porous biobased carbon materials as sustainable and high-performance sulfur hosts.

The synthesis involves different type of chemical agents to produce mesoporous carbon, followed by comprehensive characterization using techniques such as XRD, FTIR, SEM, Raman, and XPS to confirm its structure and properties.

Characterization techniques will include electrochemical impedance spectroscopy (EIS), cyclic voltammetry (CV), and battery cycling tests to evaluate the performance of the carbon-sulfur composite cathode.



[1]

Suitable for all types of theses

by students working on their masters degree in chemistry, material sciences, engineering, energy or any similar studies with training in laboratory practice. The range of the project can be adjusted to suit your interest and the requirements of each thesis.

Contact:

M.Sc Fabisch Kilonzi

Langer Kamp 6a/b, 38106 Braunschweig

Tel.: 0531-391 65373

f.kilonzi@tu-braunschweig.de