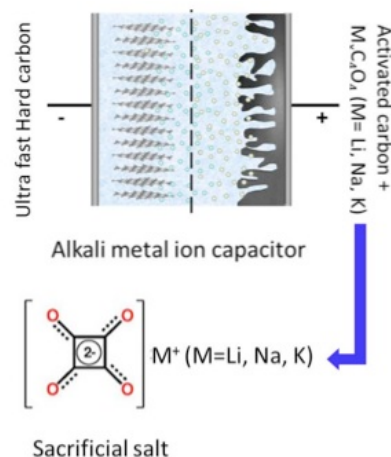


# METAL ION CAPACITOR BASED ON HARD CARBON AS NEGATIVE ELECTRODE AND A MIXTURE OF ACTIVATED CARBON AND SACRIFICIAL SALTS AS THE POSITIVE ELECTRODE

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Researchers at CIC energiGUNE have developed a new metal ion capacitor with outstanding power capabilities comprising a negative electrode based on hard carbon and a positive electrode based on a combination of activated carbon and a sacrificial salt. The sacrificial salt is added to the activated carbon in the positive electrode as a source of metal ions for pre-doping the hard carbon and to efficiently compensate its high irreversible capacity by providing the metal ions necessary for the formation of solid electrolyte interphase on the hard carbon, allowing for a 1:1 and superior mass balances between anode and cathode. Advantageously, the extraordinary performance of this approach has been successfully demonstrated not only in lithium-ion capacitors but also in other metal ion capacitors such as sodium and potassium ion capacitors.



## ADDED VALUE

- ✓ Higher energy and higher power compared to graphite based LICs
- ✓ Easily scalable, industrially compatible fabrication process

## APPLICATION OF THE TECHNOLOGY

- ✓ Electric vehicle
- ✓ Heavy Duty applications
- ✓ Grid regulation, UPS, Voltage sag compensation, power quality
- ✓ Stationary (Renewable)
- ✓ Energy recovery (Transportation)

## LICENSING CONTACT

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