

## Anion storage in graphite: mechanism, kinetics and devices

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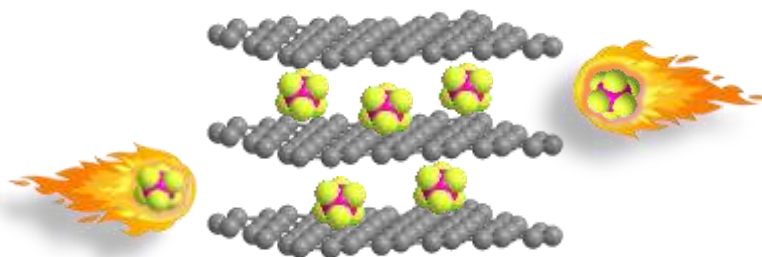
### Abstract

Anion storage is the basic foundation of recently explored dual-ion batteries (DIBs), where both anions and cations are involved in the electrochemical reactions. As a commercialized anode material in nowadays Li-ion batteries, graphite shows great potential to achieve substantial anion storage due to its unique redox-amphoteric intercalation feature. We find that anion storage in graphite is a staging, self-activating and capacitive-like intercalation process, which makes graphite a new intercalation-pseudocapacitive cathode material with high power capability. Comparing graphite with conventional activated carbon material, we propose a new-type Li-ion pseudocapacitor with both high energy and power. Further, we will introduce our effort on building polarity-switchable symmetric graphite devices which can tolerate polarity mix-up during charging and perform in two directions. A short discussion on future development of graphite cathode and its derived energy devices will be also presented.

### References

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### Figures



**Figure 1:** Schematic illustration of anion intercalation into graphite.