

## Stabilizing the Anode-Electrolyte Interface for Improved Battery Performance

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Graphite has been widely used as an anode material for commercial lithium-ion batteries (LIBs) because of its high coulombic efficiency and better cycle performance due to high chemical and mechanical stability. A large irreversible capacity loss related to solid electrolyte interphase (SEI) film formation during the initial cycle and the SEI stability with cycling are still an important subject for improving the cycling performance and safety of LIBs. Conventional organic carbonate-based liquid electrolyte with ethylene carbonate (EC) is an indispensable ingredient of electrolyte responsible for providing a good SEI at graphite anode. In this study, we report the electrochemical performance of graphite anode in our newly designed functional electrolyte that can operate wide temperature and voltage ranges. Studies of interfacial chemistry between graphite anode and our designed electrolyte for improving the cycle performance and the SEI stability would be discussed in the meeting.