

Novel Ionic Liquids and Uses Thereof

Disclosure Number

201002355

Technology Summary

We use different strategies to design and formulate ionic liquids so that they are compatible with both graphite electrode and 5.0V cathode. In the first approach we use small amount of additives to the ionic liquids so that the mixture of the electrolytes is compatible with graphite electrode and still has the overall electrochemical window greater than 5.0V. In the second approach we design mixtures of ionic liquids with electrochemical window higher than 5.0V, but one of them has specific anions that can participate in forming stable solid electrolyte interface (SEI) on the graphite electrode while the other one has lower viscosity to provide higher ionic conductivity. In the third approach we use special single ion conductors to coat on the surface of graphite electrodes so that they will not be exfoliated when ionic liquids are used as the electrolytes.

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