

## Thermodynamic Modeling of the Phase Behavior of Ionic liquids and alcohols

박남구, 배영찬\*  
한양대학교 화학공학과 분자열역학 연구실  
(ycbae@hanyang.ac.kr\*)

Increasing usage of various electronic appliances, many electricity tools should require more and more a superior energy storage devices, high efficiency of charge, discharge behavior and safety system. Lithium secondary batteries with high energy density and wide abundant availability were the best choice among suitable battery system. However the most lithium secondary batteries using liquid electrolytes had one of the big problems as explode at extreme conditions as well as room-temperature conditions. This weakness must need some innovated material for electrolyte materials. Ionic liquids (ILs) arouse a huge interesting because they have a lot of attractive properties such as non-flammability and non-volatility. In spite of these suitable advantages, immediately application for lithium battery systems is unjustifiable without comparing original system's conductivity and efficiency. Therefore, in this presentation, we have derived a ionic liquid thermodynamic model based on the modified double lattice model with comparing phase behaviors in Ionic liquid phase and liquid electrolyte(alcohols) phase.