

## Studies of Improvement Strategy of Cycling Performance of All-Solid-State Batteries

와기훈, 이민하, 석정돈<sup>1</sup>, 송승환<sup>†</sup>

충남대학교; <sup>1</sup>한국화학연구원

(swsong@cnu.ac.kr<sup>†</sup>)

Recently, as electric vehicles are powered by lithium-ion batteries, concerns of battery safety are largely increasing for users' safety. Commercialized lithium-ion batteries include carbonate-based organic liquid electrolyte, which causes safety issues. To replace liquid electrolytes with safety concerns, solid electrolytes such as polymers, inorganics, and ceramics have been actively studied. Solid electrolytes face challenges like lower ionic conductivity and interfacial resistance between cathode and electrolyte, etc., which deleteriously affect performance. We report here the fabrication of polymer-based solid-state batteries with the nickel-rich cathode, the attainment of high areal capacity  $> 1.5 \text{ mAhcm}^{-2}$  and improvement of cycling performance using interface stabilization using additives. Studies of the changes in the interfacial resistances and cathode structure with cycling and their correlation to cycling performance would be discussed in this meeting.