School Seminar (2015-11)

School of Materials Science & Engineering

"Recent fundamental issues of electrodics & ionics in lithium-ion batteries"

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(Dept. of Energy Systems Engineering, DGIST)

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APRI 1F, Auditorium Hall

Recent fundamental issues of electrodics & ionics in lithium-ion batteries

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Nowadays, lithium-ion batteries (LIBs) are not only powering various mobile IT devices (laptop PCs, cellular phones, mp3 players etc.) but are playing critical roles in transportation (HEV, EV), robots and electricity storage for renewable energy. However, the understanding on the electrodics at electrode/electrolyte interfaces and the ionics in bulk LIB electrolytes seems to be far behind the status of current LIB technology.

This talk will address some of the fundamental physicochemical aspects of the electrodics and the ionics related to LIBs and possibly to post-LIBs. First, the present kinetic models for the charge transfer reactions at electrode/electrolyte interfaces will be introduced with an emphasis on recent findings on solvation/desolvation of Li+ ions. Then, a few recent results on the dielectric behaviors of carbonates solutions will be presented.

It is also hoped that this talk will improve general understanding on the chemistries of present LIB electrolytes, and offer the clues for the future R&D direction in LIB and post-LIBs.

이 력 서

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전공분야	전기화학 (Electrochemistry) 리튬 이차전지 (Lithium-ion Batteries) 전해질 (Electrolytes) 전기화학적 에너지 변환 (Electrochemical energy conversion) 부식 (Corrosion)		