

Development of In Situ Measurement Techniques for Lithium-ion Batteries

Naoaki Kuwata, ○Yoshiki Iwai, Yasutaka Matsuda, Junichi Kawamura

Solid State Ion Physics, Research Center for Sustainable Science &
Engineering,
Institute of Multidisciplinary Research for Advanced Materials,
Tohoku University
Kawamura Laboratory

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Key Words

1. AE (Acoustic Emission)

Detection sounds from Lithium ion battery

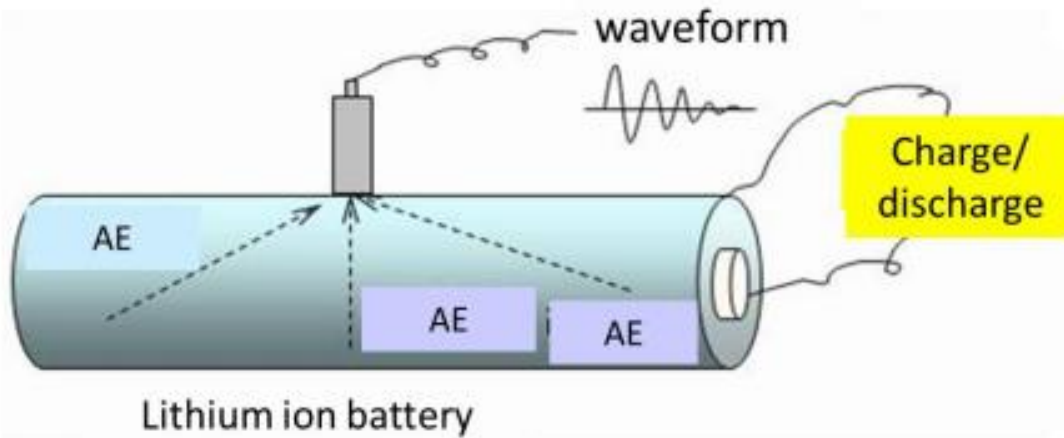
2. MRI (NMR Imaging)

^1H and ^7Li distribution in Lithium ion battery

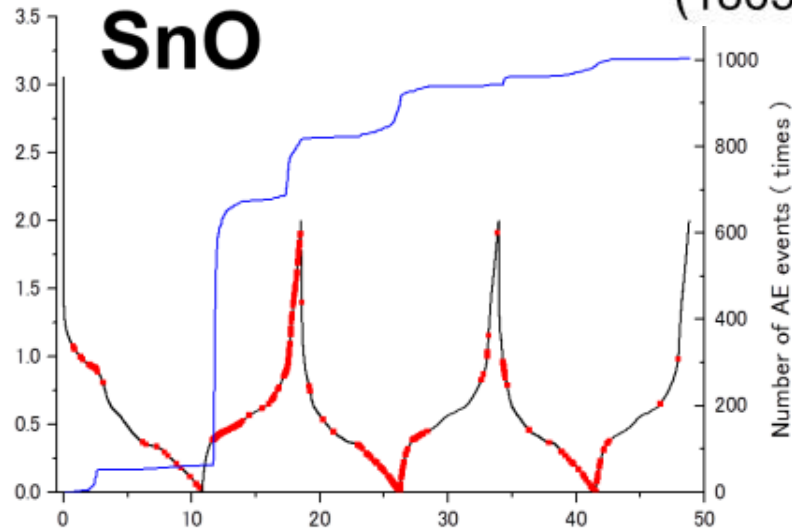
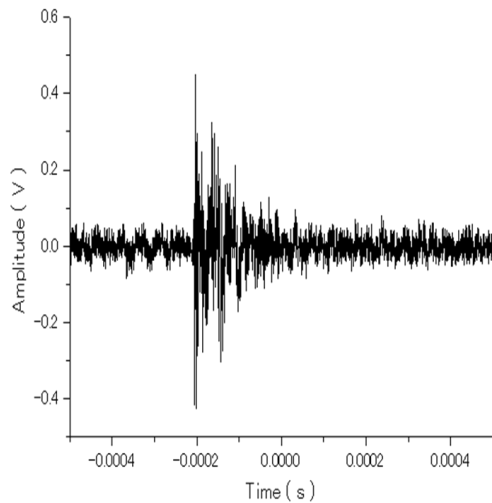
3. PLD (Pulsed Laser Deposition)

All solid thin film battery

1. Acoustic Emission



Li-ion battery for laptop (18650-type)



AE signal is strongly related to degradation process, volume expansion, decomposition etc.

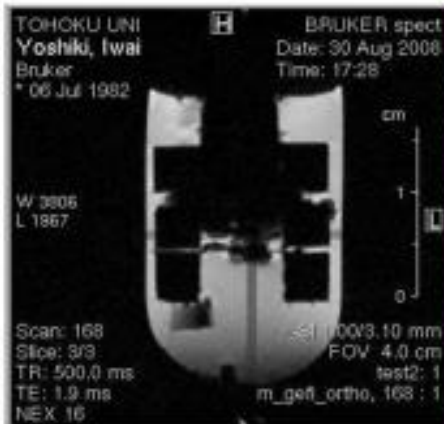
2. MRI



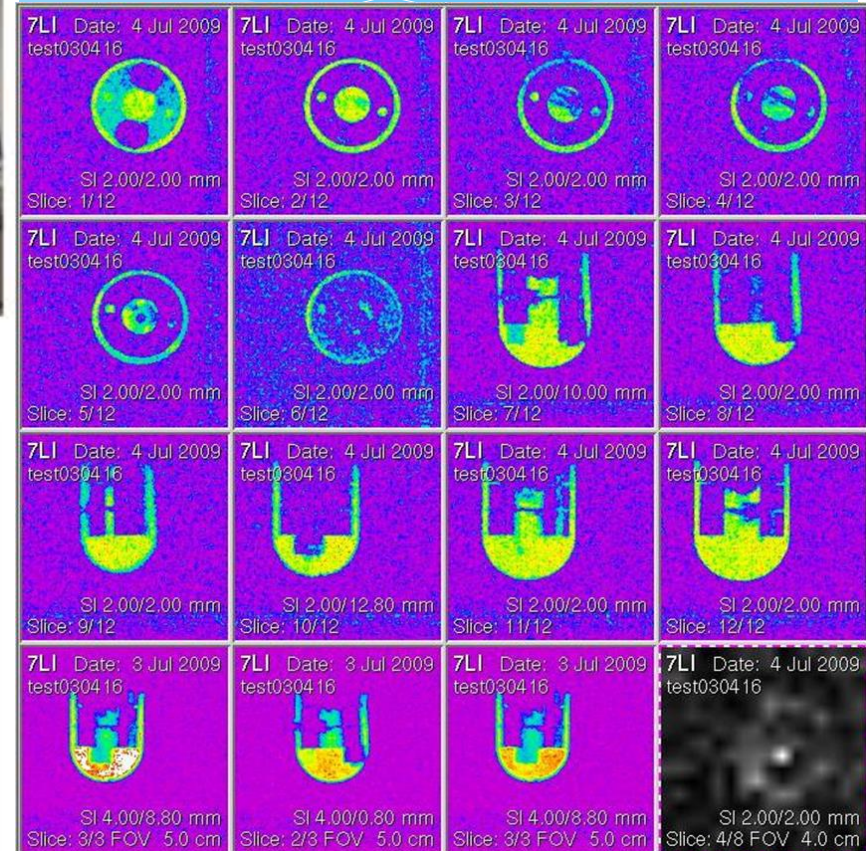
MRI of human brain



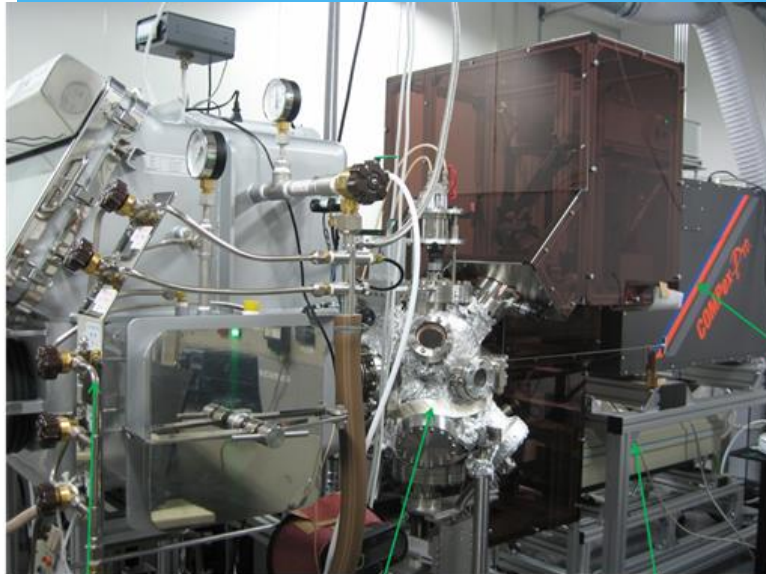
MRI system with superconducting magnet



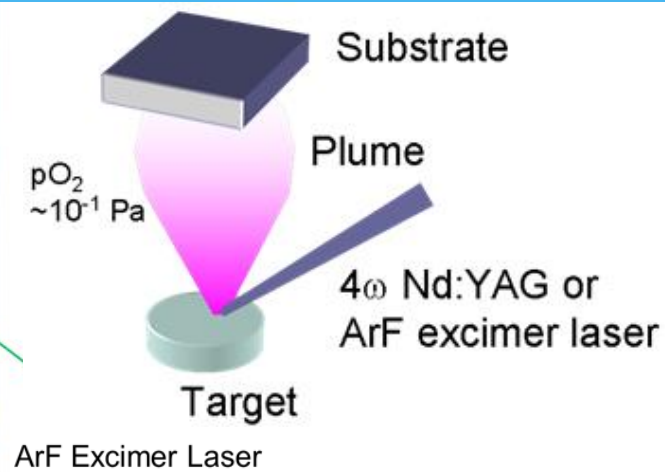
MRI of a model lithium ion battery



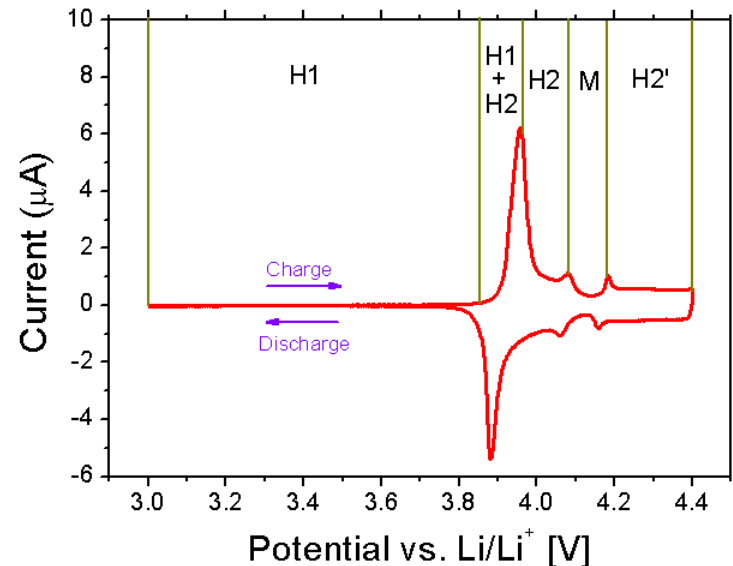
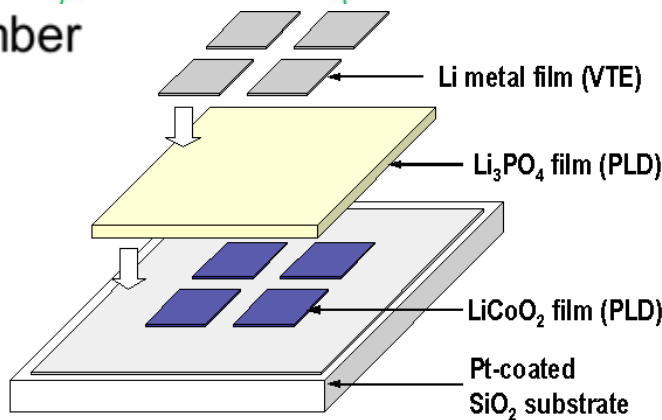
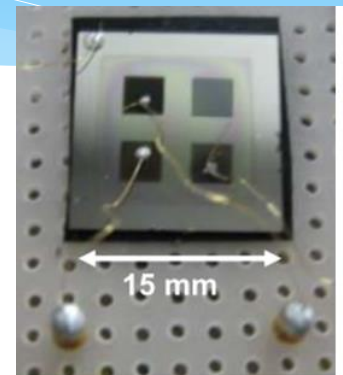
3. PLD technique for all solid battery



PLD chamber



Li/Li₃PO₄/LiCoO₂ thin-film battery



All solid states battery is fabricated by PLD technique



Thank you for your attention