R&D of zinc anode batteries

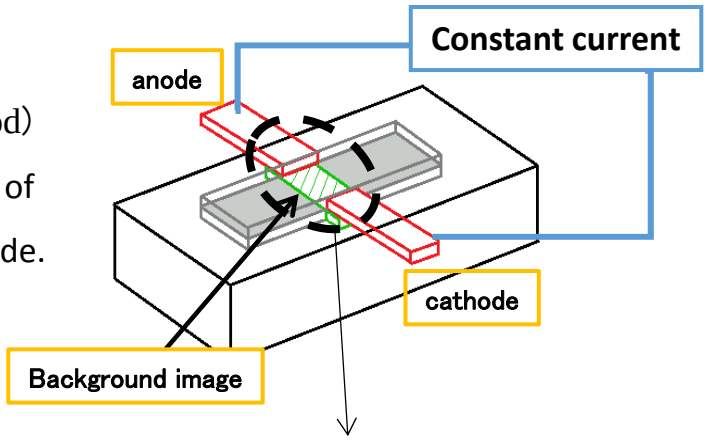
Abstract

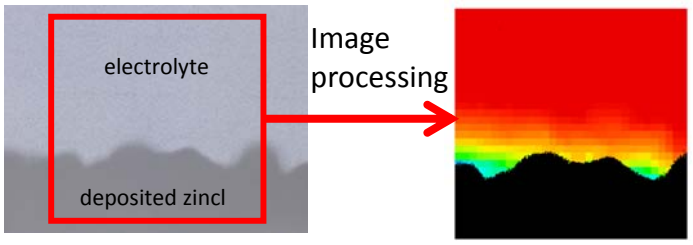
Zinc battery is one of the potential alternatives for large-scalebatteries. However, short life cycle due to non-unifrom electrodeposition of zinc on charging prevents from its commercialization. In this study, we enabled in-situ measurement of zinc concentration near the zinc anode by applying background-oriented Schlieren (BOS) technique. We are trying to suppress the non-uniformity by controlling the mass transport of zinc ion by some methods such as flowing electrolyte.

Measurement of zinc ion concentration field by BOS method

Background Oriented Schlieren (BOS method)

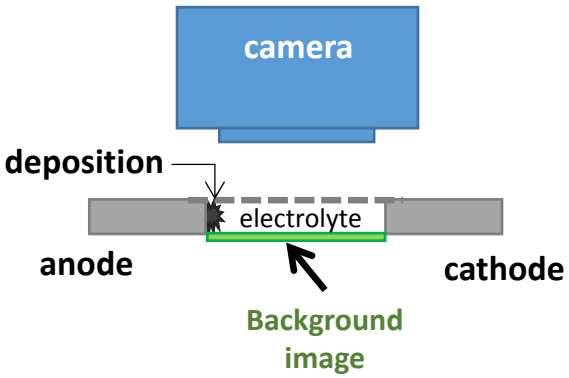
Is first applied to quantitative measurement of zinc ion concentration field near the zinc anode.





Raw image

Zinc ion concentration field



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