

## Fabrication of Nanostructured Ir/CeO<sub>2</sub> Catalyst for Oxygen Evolution Reaction in Acidic Media

전우태, 윤덕현<sup>†</sup>

강원대학교

(youndh@kangwon.ac.kr<sup>†</sup>)

Sluggish kinetics and highly corrosive environment of oxygen evolution reaction (OER) hinder the commercialization of polymer exchange membrane water electrolysis (PEMWE). Currently, iridium-based materials are employed as typical anode catalysts due to better activity and stability compared with other noble metals. Iridium is expensive and rare, thus it is imperative to develop highly active and stable iridium-based catalyst with reduced Ir content.

Herein, we introduced CeO<sub>2</sub> as a support material for Ir owing to its several beneficial effects. In particular, unique redox property between Ce(III) and Ce(IV) can be useful for inducing more Ir(III) species which is known as OER-effective. The fabricated Ir/CeO<sub>2</sub> in this study displayed enhanced OER activity with a low overpotential value (260.1 mV at 10 mAcm<sup>-2</sup>) and excellent stability (25.15 mV increased for 20h at 10 mAcm<sup>-2</sup>).