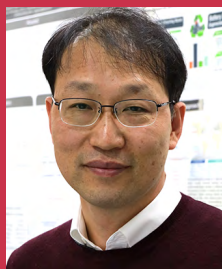


# 전기화학. 촉매 연구실

Electrochemical  
Reaction & Technology  
Laboratory



**이재영**  
교수

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## 학위사항

- 1999 ~ 2001** Dr. rer. nat. in Department of Physical Chemistry, FHI der MPG & FU Berlin
- 1996 ~ 1998** M.Sc. in Department of Chemical Engineering, Inha Univ.
- 1992 ~ 1996** B.Ch.E. in Department of Chemical Engineering, Inha Univ

## 주요경력

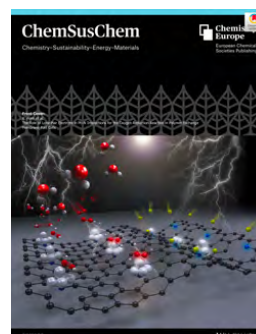
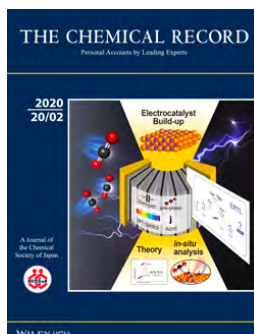
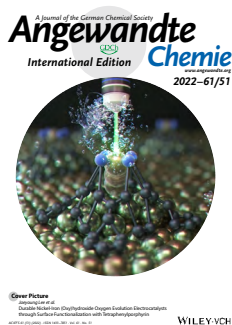
- 2021 ~ 2026** Director, ifRC-CHESS
- 2022 ~ 2024** ISE RP(KOREA), SMC
- 2019.7 ~ 2021.6** Dean, School of Earth Sciences and Environmental Engineering, GIST
- 2018 ~ 2023** GIST Prominent Professor
- 2013 ~ Present** Vice President and Senior Board Member of ADeKo
- 2007 ~ Present** Professor, School of Earth Sciences and Environmental Engineering, GIST
- 2009 ~ Present** Vice Director, Ertl Center for Electrochemistry and Catalysis, GIST
- 2014 ~ 2015** R&D Planner (RP, Renewable Energy), NRF KOREA
- 2004 ~ 2007** Senior Scientist, Fuel Cell Research Center, KIST
- 2002 ~ 2004** Senior Engineer, Environment & Energy Research Center, RIST (POSCO)

## 학회활동 및 수상실적 등

- |                               |  |             |  |
|-------------------------------|--|-------------|--|
| <b>2016, 2017, 2019, 2021</b> | GIST Research Award (총장표창)                 | <b>2011</b> | Tajima Prize (International Society of Electrochemistry, ISE)      |
| <b>2018</b>                   | Inha University Alumni Award 장관표창          | <b>2011</b> | Alexander Humboldt Research Fellowship for Experienced Researchers |
| <b>2017</b>                   | 1st INNOX Research Award (KSIEC)           | <b>2011</b> | The Distinguished Lectureship Award (일본화학회)                        |
| <b>2015</b>                   | CAP Authorship Award (KPS)                 | <b>2002</b> | Oronzio De Nora Foundation Young Author Prize(ISE)                 |
| <b>2014</b>                   | Electrocatalysis Springer Authorship Award |             |  |

## 연구실 소개

勞作的 産室, ERTL 연구실(Electrochemical Reaction & Technology Laboratory)은 학문적으로, 산업적으로 파장이 큰(High Risk, High Impact Research) 전기화학 기초연구와 응용연구를 수행하고 있다. (1) 친환경 연료전지(포름산, 하이드라진, 에탄올, 수소, 커피찌꺼기), (2) 리튬-황 배터리, (3) 이산화탄소의 재자원화(Fuels from CO<sub>2</sub>), (4) 유기화합물 및 질소화합물 (암모니아)의 완전 전기분해 (Electrolysis)를 통한 초고순도 수소 생산, (5) 고효율 산소 환원과 산소발생이 주요 연구 주제이다. ER TL은 연구개발단계부터 녹색화학기반 오염물질 Zero Emission Science and Technology (ZEST: 열정)을 추구하고 있다.



## 연구 성과

### 주요논문 (대표실적)

- Durable Nickel-Iron (Oxy)hydroxide Oxygen Evolution Electrocatalysts through Surface Functionalization with Tetraphenylporphyrin, *Angewandte Chemie Int. Ed.* 61 (2022) e2022145.
- Local Proton Source Enhanced Nitrogen Reduction on a Combined Cobalt-Molybdenum Catalyst for Electrochemical Ammonia Synthesis, *Angewandte Chemie Int. Ed.* 61 (2022) e2022126.
- Pore surface engineering of FeNC for outstanding power density of alkaline hydrazine fuel cells, *Chemical Engineering Journal* 479 (2024) 147522.
- 100 W-class Green Hydrogen Production from Ammonia at a Dual-layer Electrode containing a Pt-Ir Catalyst for an Alkaline Electrolytic Process, *Journal of Energy Chemistry* (2024).
- Non-noble electrocatalysts discovered by scaling relations of Gibbs-free energies of key oxygen adsorbates in water oxidation, *Journal of Materials of Chemistry A* 10 (2022) 15975-15980.
- Syngas production for Fischer-Tropsch process via co-electrolytic processes of CO<sub>2</sub> reduction and NH<sub>3</sub> oxidation, *Chemical Engineering Journal* 430 (2022) 132563.
- (주) 이써스(eSUS) Co., Ltd. 설립. (주소: www.esus.co.kr)
- GIST-DLR 간 Non-disclosure agreement (NDA) 체결. (GIST, 獨行공우주연구소와 '기밀유지협약' 갱신 | 헤럴드경제. <https://v.daum.net/v/20230925110655745>)

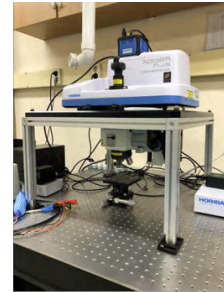
### 주요연구시설



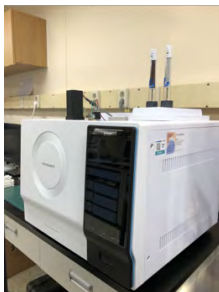
BET 물리흡착분석기



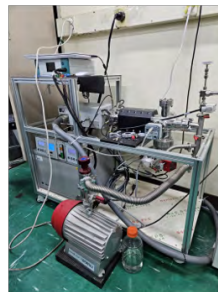
in-situ FT-IR 분광기



in-situ Raman 분광기



GC-MS 분석기



in-situ DEMS



초고온 열처리 장비

## 융합연구 및 비전

