

Curriculum Vitae/Resume

Ho-II Ji

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EDUCATION

California Institute of Technology (Caltech) (2012.10 - 2017.06)

Ph.D. program in Materials Science

(Advisor: Prof. Sossina M. Haile)

Research focus: Thermochemical cycle, Kinetics in Oxides

Seoul National University (2007.03 - 2009.02)

M.S. in Material Science and Engineering

(Advisor: Prof. Han-III Yoo)

Research focus: Point-defect structure analysis, Solid State Ionics

Seoul National University (2003.03 - 2007.02)

B.S. in Material Science and Engineering

RESEARCH & WORK EXPERIENCE

Senior Research Scientist (Full-time regular staff),

Korea Institute of Science and Technology (KIST) (2009.03 – present)

- High Temperature Energy Materials Research Center
- Performed research on Solid State Ionics and Electrochemistry in Solid Oxide Fuel Cells and Protonic Ceramic Fuel Cells

Visiting Pre-doctoral Fellow, **Northwestern University** (2015.05 – 2017.06)

(Advisor: Prof. Sossina M. Haile)

- Thermochemical cycle, Kinetics in Oxides

Teaching Assistant, **Northwestern University** (2016.01 - 2016.03)

- Solid State Chemistry

Researcher, **Seoul National University** (2007.03 - 2009.02)

- Dissertation: High-temperature Defect Structure of PDP MgO

Teaching Assistant, **Seoul National University** (2007.03 - 2007.12)

- Thermodynamics
- Physical Chemistry of Ceramics

AWARDS AND SCHOLARSHIPS

Young Ceramist Award, The Korean Ceramic Society (2019.11)

KIST Person of the Month (2018.09)

Financial Support Program, Korea Institute of Science and Technology (2012.09 – 2014.08)

National Graduate S&T Scholarship, Korea Student Aid Foundation (2007.09 - 2008.07)

Scholarship for Teaching Support and Research, Seoul National University (2007.03 - 2007.07)

National Undergraduate S&T Scholarship, Korea Student Aid Foundation (2003.03 - 2006.12)

PUBLICATION (selected)

1. J. Shin, J.H. Park, J. Kim, K.J. Yoon, J.W. Son, J.H. Lee, H.W. Lee, **H.I. Ji***, Suppression of processing defects in large-scale anode of planar solid oxide fuel cell via multi-layer roll calendaring, *Journal of Alloys and Compounds*, 812 (2020) 152113.
2. A. Jan, J. Shin, J. Ahn, S. Yang, K.J. Yoon, J.W. Son, H. Kim, J.H. Lee, **H.I. Ji***, Promotion of Pt/CeO₂ catalyst by hydrogen treatment for low-temperature CO oxidation, *RSC Advances*, 9 (2019) 27002-27012.
3. J. Kim, J. Ahn, J. Shin, K.J. Yoon, J.W. Son, J.H. Lee, D. Shin, H.W. Lee, **H.I. Ji***, Enhanced sinterability and electrochemical performance of solid oxide fuel cells via a roll calendaring process, *Journal of Materials Chemistry A*, 7 (2019) 1055-1063.
4. S.M. Choi, H. An, K.J. Yoon, B.K. Kim, H.W. Lee, J.W. Son, H. Kim, D. Shin*, **H.I. Ji***, J.H. Lee*, Electrochemical analysis of high-performance protonic ceramic fuel cells based on a columnar-structured thin electrolyte, *Applied Energy*, 233-234 (2019) 29-36.
5. S.M. Choi, J. Ahn, J.W. Son, J.H. Lee, B.K. Kim, K.J. Yoon, **H.I. Ji***, Comprehensive understanding of cathodic and anodic polarization effects on stability of nanoscale oxygen electrode for reversible solid oxide cells, *ACS Applied Materials & Interfaces*, 10 (2018) 39608-39614.
6. H. An, H.W. Lee, B.K. Kim, J.W. Son, K.J. Yoon, H. Kim, D. Shin*, **H.I. Ji***, J.H. Lee*, A scalable high-performance protonic ceramic fuel cell, *Nature Energy*, 3 (2018) 870-875.
7. **H.I. Ji***, H. Kim, H.W. Lee, B.K. Kim, J.W. Son, K.J. Yoon, J.H. Lee, Open-cell voltage and electrical conductivity of a protonic ceramic electrolyte under two chemical potential gradients, *Physical Chemistry Chemical Physics*, 20 (2018) 14997-15001.
8. S. Choi, C.J. Kucharczyk, Y. Liang, X. Zhang, I. Takeuchi, **H.I. Ji**, S.M. Haile, Exceptional power density and stability at intermediate temperatures in protonic ceramic fuel cells, *Nature Energy*, 3 (2018) 202-210.
9. **H.I. Ji**, X. Xu, S.M. Haile, Chemical surface exchange of oxygen on CeO_{2-δ} in an O₂/H₂O atmosphere, *Physical Chemistry Chemical Physics*, 19 (2017) 29287-29293.
10. **H.I. Ji**, T.C. Davenport, M.J. Ignatowich, S.M. Haile, Gas-Phase vs Material-Kinetic Limits on the Redox Response of Nonstoichiometric Oxides, *Physical Chemistry Chemical Physics*, 19 (2017) 7420-7430.
11. **H.I. Ji**, J. Hong, K.J. Yoon, J.W. Son, B.K. Kim, H.W. Lee, J.H. Lee, Investigation of the electrochemical reactions at a limited-contact La_{1-x}Sr_xMnO₃/Y-doped ZrO₂ interface with a rod-type ionic-probe, *Journal of Power Sources*, 330 (2016) 285-291.
12. **H.I. Ji**, T.C. Davenport, C.B. Gopal, S.M. Haile, Extreme high temperature redox kinetics in ceria: Exploration of the transition from gas-phase to material-kinetic limitations, *Physical Chemistry Chemical Physics*, 18 (2016) 21554-21561.
13. **H.I. Ji**, S.M. Choi, K. Yoon, J.W. Son, B.K. Kim, H.W. Lee and J.H. Lee, Influence of wet atmosphere on electrical and transport properties of lanthanum strontium cobalt ferrite cathode materials for protonic ceramic fuel cells, *Solid State Ionics*, 249-250 (2013) 112-116.
14. **H.I. Ji**, J. Hwang, K. Yoon, J.W. Son, B.K. Kim, H.W. Lee and J.H. Lee, Enhanced oxygen diffusion kinetics in epitaxial perovskite thin films for low-temperature solid oxide fuel cells, *Energy & Environmental Science*, 6 (2013) 116-120.
15. **H.I. Ji**, B.K. Kim, J.H. Yu, S.M. Choi, H.R. Kim, J.W. Son, H.W. Lee, J.H. Lee, Three dimensional representations of partial ionic and electronic conductivity based on defect structure analysis of BaZr_{0.85}Y_{0.15}O_{3-δ}, *Solid State Ionics*, 203 (2011) 9-17.