

Hongyeun Kim

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a. Professional Appointments

2025-Present Assistant Research Professor, **Pennsylvania State University, USA**
2019-2025 Postdoctoral researcher, **Pennsylvania State University, USA**
2012-2012 Researcher, **LG Chemical (present, LG Energy Solution), Daejeon, Korea**
2010-2011 Researcher, **Yonsei University, Seoul, Korea**
2003-2005 Researcher, **JoongWon Co. Ltd., Ansan, Korea**

b. Education

Kookmin University	Materials Science and Engineering	2003
Yonsei University	Ceramic Engineering	B.S., 2008
Yonsei University	Materials Science and Engineering	M.S., 2010
University of Florida	Materials Science and Engineering	M.S., 2014
Pennsylvania State University	Materials Science and Engineering	Ph.D., 2019

c. Publications

(i) Published works

- **H. Kim**, S. Yoshida, K. Hayashi, and J. C. Mauro, "Atomistic Simulation of Nanoscale Phase Separation in Borosilicate Glass Melts", *Journal of American Ceramic Society*, accepted (2025)
- **H. Kim**, M. Montazerian, N. Clark, A. Schöch, T. Senti, A. Frey, M. Rampf, and J. C. Mauro, "Machine Learning-Based Microstructure Identification in Lithium Silicate Dental Glass-Ceramics", *Journal of American Ceramic Society*, accepted (2025)
- **H. Kim** and J. C. Mauro, "Structural origins of the mixed modifier effect on hardness in aluminosilicate glass", *Journal of American Ceramic Society*, 108(6), e20437 (2025)
- **H. Kim**, Y. Yang, H. Tokunaga, A. Koike, M. Ono, and J. C. Mauro, "Theoretical study of the thermal conductivity of silica glass-crystal composites", *Journal of American Ceramic Society*, 106(2), 977-987 (2023)
- W. Y. Wang, T. Zhao, C. Zou, **H. Kim**, S.-L. Shang, Y. Wang, S. Yang, Q. Feng, X. Hui, L. J. Kecskes, J. Li, Z.-K. Liu, "Site Occupation and Structural Phase Transformation of the (010) Antiphase Boundary in Boron-Modified L12 Ni₃Al", *JOM*, 73(8) (2021)
- R. Zhao, **H. Kim**, J. Stapleton, Zi-Kui Liu and J. Robinson, "Freestanding ultra-thin silica", *AIP Advances*, 10, 025126 (2020)
- **H. Kim**, A. J. Ross, S. L. Shang, Y. Wang, L. J. Kecskes and Z. K. Liu, "First-Principles Calculations and Thermodynamic Modelling of Long Periodic Stacking Ordered (LPSO) Phases in Mg-Al-Gd", *Materialia*, 4, 192-202 (2018)
- **H. Kim**, W. Y. Wang, S.L. Shang, L. Kecskes, K. Darling, Z. K. Liu, "Elastic Properties of Long Periodic Stacking Ordered Phases in Mg-Gd-Al Alloys: A First-Principles Study", *Intermetallics*, 98, 18-27 (2018)
- W. Y. Wang, Y. Wang, S. L. Shang, K. A. Darling, **H. Kim**, B. Tang, H. C. Kou, S. N. Mathaudhu, X. Hui, J. S. Li, L. Kecskes, and Z. K. Liu, "Strengthening Mg alloys by Self-dispersed Nano-lamellar Faults", *Materials Research Letters*, 5, 415-425 (2017)
- W. Y. Wang, S. L. Shang, Y. Wang, **H. Kim**, K. A. Darling, L. J. Kecskes, S. N. Mathaudhu, X. Hui and Z. K. Liu, "Solid solution hardening Mg-Gd-TM (TM = Ag, Zn and Zr) alloys: An integrated density functional theory and electron work function study", *JOM*, 67, 2433-2441 (2015)

- **H. Kim**, D. Lee and J. Moon, "Co-Electrospun Pd-coated Porous Carbon Nanofibers for Hydrogen Storage Applications," *International Journal of Hydrogen Energy*, 36(5), 3566-3573 (2011)
- H. S. Song, S. Lee, D. Lee, **H. Kim**, S. H. Hyun, J. Kim and J. Moon, "Functionally-graded composite cathodes for durable and high performance solid oxide fuel cells," *Journal of Power Sources*, 195 (9), 2628-2632 (2010)
- **H. Kim**, D. Lee and J. Moon, 'Fabrication of Nanoporous Carbon Fibers by Electrospinning,' *Korean Journal of Materials Research*, 19 (10), 562-568 (2009)
- **H. Kim**, "Thermodynamic Modeling and Mechanical Properties Modeling of Long Periodic Stacking Ordered (LPSO) Phases" Pennsylvania State University (2019)

d. Conference activities

- Oral Presentation 'Understanding the Structural Origin of Hardness in the Mixed Modifier Effect in Aluminosilicate Glass' at the 21st University Conference on Glass in Alfred University, NY.
- Poster Presentation 'Temperature-dependent hardness model of materials' at the 2019 CALPHAD meeting in Singapore.
- Oral Presentation 'Predictive modeling of temperature-dependent hardness' at the TMS 2019 meeting in San Antonio, Texas.
- Oral Presentation 'Hardness Modeling of Plastic Deformation Materials' at the MS&T 2018 meeting in Columbus, Ohio.
- Oral Presentation 'CALPHAD modelling of Long Periodic Stacking Ordered (LPSO) phases in Mg-Gd-Al ternary system' at the 2017 CALPHAD meeting in Saint-Malo, France.
- Poster Presentation 'Phase Stabilities of Long Periodic Stacking Ordered (LPSO) Phases at Finite Temperature in Magnesium-Gadolinium-Aluminum Ternary System' at 2017 TMS meeting in San Diego, California.
- Oral Presentation 'Fabrication of Palladium Coated Microporous Carbon Fibers via Co-Electrospinning' at the Materials Challenges in Alternative & Renewable Energy 2010 conference held by ACerS in Cocoa Beach, Florida.
- Poster Presentation 'Fabrication and Characterization of Electrospun Ceramic Nanofiber' at Fall 2009 National Meeting & Exposition held by The Korean Ceramic Society
- Poster Presentation 'Fabrication of Ceramic Nanofiber via Electrospinning Process - Effect of viscosity and Molecular weight' at Spring 2009 National Meeting & Exposition held by Materials Research Society of Korea
- Poster Presentation 'Fabrication of Microporous Carbon Fibers via Electrospinning' at Spring 2010 National Meeting & Exposition held by Materials Research Society of Korea
- Poster Presentation 'Characterization of Electrode-Electrolyte Interface by Impedance Spectroscopy' at the 2008 Korea-Japan-China SOFC Symposium held by The Korean Ceramic Society and Fuel Cell Research Center, POSTECH, Korea

e. Awards

- Larry Kaufman Scholarship (2017 and 2019)
- Best poster award (2019), CALPHAD 2019 conference.