

Yongho Sohn, Ph.D.
UCF Pegasus Professor, Lockheed Martin Professor of Engineering, Fellow ASM

<http://mse.ucf.edu/sohn/>

Professional Preparation

University of Connecticut	Materials Science and Engineering	Postdoctoral
Purdue University	Materials Science and Engineering	Ph.D. 1998
Worcester Polytechnic Institute	Materials Science and Engineering	M.S. 1993
Worcester Polytechnic Institute	Mechanical Engineering, Honors	B.S. 1991

Appointments

Aug., 10 – Present	Professor, Advanced Materials Processing and Analysis Center and Department of Materials Science and Engineering, University of Central Florida, Orlando, FL
Aug., 07 – Present	Associate Director for Materials Characterization Facility, Advanced Materials Processing and Analysis Center, University of Central Florida, Orlando, FL
Aug., 05 – July 10	Associate Professor, <i>Ibd.</i> , University of Central Florida, Orlando, FL
Jan., 01- July 05	Assistant Professor, <i>Ibd.</i> , University of Central Florida, Orlando, FL
Dec., 98-Nov., 00	Post-Doctoral Research Fellow, Department of Metallurgical and Materials Engineering, University of Connecticut, Storrs, CT

Research and Teaching Interests

- Alloy Design and Development for Additive Manufacturing: Laser Powder Bed Fusion and Powder Synthesis by Gas Atomization
- Diffusion Kinetics, Multicomponent Intrinsic and Interdiffusion in Multiphase Alloys
- Thermotransport and Irradiation-Enhanced Diffusion in Next-Generation Nuclear Fuels and Claddings
- Thermal Barrier Coatings and Protective Metallic/Ceramic Coatings, Oxidation, Hot Corrosion and Other Environmental Degradation in Gas Turbines
- Processing, Microstructure and Property Relations in Materials, Materials Characterization, Physical Metallurgy, Phase Transformations, and Materials Thermodynamics – Kinetics

Awards and Honors

- KSEA Engineer of the Year, 2020, Korean-American Scientists and Engineers Association
- Outstanding Materials Engineer Award, 2016, School of Materials Engineering, Purdue University
- Fellow of ASM International (FASM), Class of 2015, ASM International
- Research Incentive Award, 2017, 2012 and 2006, University of Central Florida
- Teaching Incentive Program Award, 2013 and 2007, University of Central Florida
- Faculty Early CAREER Award-Grant, 2003-08, Div. Mater. Res., National Science Foundation.

Selected Publications* since 2020

1. H. Hyer, L. Zhou, A. Mehta, S. Park, T. Huynh, S. Song, K. Cho, B. McWilliams, Y.H. Sohn, "Composition-Dependent Solidification Cracking of Aluminum-Silicon Alloys During Laser Powder Bed Fusion," *Acta Mater.*, in Press, 2021.
2. Ab. Mehta, Y.H. Sohn, "Investigation of sluggish diffusion in FCC Al_{0.25}CoCrFeNi high entropy alloy," *Mater. Res. Lett.*, in Press, 2021.
3. H. Hyer, R. Newell, D. Matejczyk, S. Hsie, M. Anthony, L. Zhou, C. Kammerer, Y.H. Sohn, "Microstructural Development in As-Built and Heat Treated IN625 Component Additively Manufactured by Laser Powder Bed Fusion," *J. Phase Equil. Diff.*, in Press, 2021.
4. H. Hyer, L. Zhou, A. Mehta, Y.H. Sohn, "Effects of Alloy Composition and Solid-State Diffusion Kinetics of Powder Bed Fusion Cracking Susceptibility," *J. Phase Equil. Diff.*, Accepted for Publication, in Press, 2021.

5. Ab. Mehta, Y.H. Sohn, "High Entropy and Sluggish Diffusion "Core" Effects in Senary FCC Al-Co-Cr-Fe-Ni-Mn Alloys," *ACS: Combinatorial Science*, 22 (2020) pp. 757-767.
6. L. Zhou, T. Huynh, S. Park, H. Hyer, A. Mehta, S. Song, Y. Bai, B. McWilliams, K. Cho, Y.H. Sohn, "Additive Manufacturing of Al - 10 wt.% Ce Alloy by Laser Powder Bed Fusion," *J Mater. Sci.*, 55 (2020) pp. 14611-14625.
7. H. Hyer, L. Zhou, S. Park, G. Gottsfritz, G. Benson, B. Tolentino, B. McWilliams, K. Cho, Y.H. Sohn, "Understanding the Laser Powder Bed Fusion of AlSi10Mg Alloy," *Metall. Microst., Anal.* 9 (2020) pp. 484-502.
8. Ab. Mehta, L. Zhou, D.D. Keiser, Jr., Y.H. Sohn, "Anomalous Growth of Al₈Mo₃ Phase During Interdiffusion and Reaction between Al and Mo," *J. Nucl. Mater.*, (2020) 152337.
9. L. Zhou, H. Hyer, S. Thapliyal, R. Mishra, B. McWilliams, K. Cho, Y.H. Sohn, "Process-dependent Composition, Structure, and Printability of Al-Zn-Mg and Al-Zn-Mg-Sc-Zr Alloys Manufactured by Laser Powder Bed Fusion," *Metall. Mater. Trans. A*, 51A (2020) 3215-3227.
10. Ab. Mehta, Y.H. Sohn, "Interdiffusion, Solubility Limit, and Role of Entropy in FCC Al-Co-Cr-Fe-Ni alloys," *Metall. Mater. Trans. A*, 51A (2020) 3142-3153.
11. H. Hyer, L. Zhou, G. Benson, B. McWilliams, K. Cho, Y.H. Sohn, "Additive Manufacturing of Dense WE43 Magnesium Alloy by Laser Powder Bed Fusion," *Add. Manufac.* 33 (2020) 101123.
12. R. Newell, A. Mehta, D.D. Keiser Jr., Y.H. Sohn, "Phase Reversion Kinetics of Thermally Decomposed ($\alpha + \gamma'$) Phases to γ -phase in U - 10 wt.% Mo Alloy," *J. Nucl. Mater*, 530 (2020) 151983.

* 180+ journal publications with 5,640+ citations (h = 39; i10 = 80); for a complete listing of publications, see <https://mse.ucf.edu/sohn/publication-peer-reviewed-journal-articles/>

Professional Services and Other Synergistic Activities

- Collaboration and Partnerships with US National Laboratories and US Industry: Idaho National Laboratory (INL), Oak Ridge National Laboratory (ORNL), Argonne National Laboratory (ANL), GE Aircraft Engine, GE Energy, Solar Turbines Incorporated, Pratt & Whitney, Siemens, Howmet Research Corporation, DWA, MC-21, Magnesium-Elektron, and Army Research Laboratory (ARL)
- Outreach: Organizer of ASM International Central Florida Chapter Materials Camp for middle and high school students; Assisted several middle and high school students on science project including a FL state finalist.
- Curricular Development: ABET Coordinator for Undergraduate Introductory Course on Materials Science and Engineering; Internet-based and Interactive-TV-based lecturing; Primary Lecturer for Graduate Introductory Course in Materials Science and Engineering
- Leadership and Professional Participation:
 - Editorial Board member for *Metallurgical and Materials Transactions*, Published by Springer, ISSN: 2196-2936/2944.
 - Associate Editor of *Journal of Phase Equilibria and Diffusion*, Published by Springer, ISSN: 1547-7037.
 - Co-Chief Editor of *Diffusion Foundations*, Published by Trans-Tech Publication Incorporated.
 - Symposium Organizations and Session Chairs for ASM International, TMS, ACERS, MS&T
 - Member of ASEE, TMS, ASM, ACERS, AWS, AVS, ASME, ASNT, Alpha Sigma Mu
 - International Graduate Student Paper Contest Committee, ASM International, 2006 – Present.
- Typical Scholarly Review: *Acta Mater.*, *Additive Manuf.*, *Scripta Mater.*, *Metall. Mater. Trans. A*, *Mater. Sci. Eng. A*, *J. Mater. Res.*, *J. Am. Ceram. Soc.*, *CalcPhad*, *Phil. Mag. A*, *J. Thermal Spray Technol.*, *Vacuum*, *Surf. Coat. Technol.*, *J. Mater. Sci.*, *Aerosp. Sci. Technol.*, *Oxid. Met.*, National Science Foundation, Department of Energy, International Science & Technology Center, Engineering & Physical Sciences Research Council