

## Akihiro Kushima, Ph.D.

Assistant Professor

Advanced Materials Processing and Analysis Center,

Department of Materials Science and Engineering

University of Central Florida

12760 Pegasus Dr., ENG1, Rm. 251, Orlando, FL 32816

Phone: (407) 823-0317

Email: [kushima@ucf.edu](mailto:kushima@ucf.edu) Web: <http://www.mse.ucf.edu/kushima>

### Education

Kyoto University, Kyoto, Japan	Engineering Science	B.E.	2002
Kyoto University, Kyoto, Japan	Engineering Physics and Mechanics	M.E	2004
Kyoto University, Kyoto, Japan	Engineering Physics and Mechanics	Ph.D.	2007
Massachusetts Institute of Technology, Cambridge, MA	Nuclear Science and Engineering	Postdoc	2007 - 2010
University of Pennsylvania, Philadelphia, PA	Materials Science and Engineering	Postdoc	2010 - 2012

### Appointments

- 2017 - *Assistant Professor*, Advanced Materials Science and Engineering, Department of Materials Science and Engineering, University of Central Florida, Orlando, FL
- 2017 - *Research Affiliate*, Department of Nuclear Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA
- 2012 - 2017 *Research Scientist*, Department of Nuclear Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA

### Recent Publications

- S. Koul, L. Zhou, O. Ahmed, Y. Sohn, T. Jiang, and A. Kushima, "In-situ TEM characterization of microstructure evolution and mechanical behavior of the 3D printed Inconel 718 exposed to high temperature", *Microsc. Microanal.*, (2021), *Accepted*.
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- J.- H. Hwang, H. Ryu, K. Rodriguez, S. Fahad, J. W. Santo Domingo, A. Kushima, W. H. Lee, "A strategy for power generation from bilgewater using a photosynthetic microalgal fuel cell (MAFC)", *J. Power Source*, **484**, 229222 (2021).
- R. Candeago, K. Kim, H. Vapnik, S. Cotty, M. Aubin, S. Berensmeier, **A. Kushima**, X. Su, "Semiconducting Polymer Interfaces for Electrochemically Assisted Mercury Remediation", *ACS Appl. Mater. Interfaces*, **12**, 49713 (2020).
- G. Wang, M. Aubin, A. Mehta, H. Tian, J. Chang, **A. Kushima**, Y. Sohn, Y. Yang, "Stabilization of Sn Anode through Structural Reconstruction of a Cu-Sn Intermetallic Coating Layer", *Adv. Mater.*, **2020**, 2003684 (2020).

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- A. Gupta, T. S. Sakhivel, C. J. Neal, S. Koul, S. Singh, **A. Kushima**, S. Seal, “Antioxidant properties of ALD grown nanoceria films with tunable valency”, *Biomater. Sci.*, **7**, 3050 (2019).
- Y. Yang, **A. Kushima**, H. Xin, P. Hosemann, and J. Li, “In-situ Observation of Concurrent Oxidation and Mechanical Deformation in Al and Zr”, *Microsc. Microanal.*, **25**, 1912 (2019).
- H. Ali, S. Koul, G. Gregory, J. Bullock, A. Javey, **A. Kushima**, and K. O. Davis, “In Situ Transmission Electron Microscopy Study of Molybdenum Oxide Contacts for Silicon Solar Cells”, *Phys. Status Solidi A*, 1800998 (2019).
- K. Liang, L. Ju, S. Koul, A. Kushima, and Y. Yang, “Self - Supported Tin Sulfide Porous Films for Flexible Aluminum - Ion Batteries”, *Adv. Energy Mater.*, **9**, 1802543 (2019).
- X. Su, A. Kushima, C. Halliday, J. Zhou, J. Li, and T. A. Hatton, “Electrochemically-Mediated Remediation of Heavy Metal Oxyanions by Redox-Active Metallopolymers: Selective Separation of Chromium and Arsenic”, *Nat Commun.* **9**, 4701 (2018).
- P. Bai, J. Guo, M. Wang, A. Kushima, L. Su, J. Li, F. R. Brushett, and M. Z. Bazant, “Interactions between Lithium Growths and Nanoporous Ceramic Separators”, *Joule*, **2**, 2434 (2018).
- L. Shi, W. Zhou, Z. Li, S. Koul, A. Kushima, Y. Yang, “Periodically Ordered Nanoporous Perovskite Photoelectrode for Efficient Photoelectrochemical Water Splitting”, *ACS Nano*, **12**, 6335 (2018).
- H. Ali, S. Koul, G. Gregory, J. Bullock, A. Javey, A. Kushima, and K. O. Davis, “Thermal Stability of Hole-Selective Tungsten Oxide: In Situ Transmission Electron Microscopy Study”, *Sci Rep.*, **8**, 12651 (2018).
- Z. Li, L. Shi, D. Franklin, S. Koul, A. Kushima, Y. Yang, “Drastic enhancement of photoelectrochemical water splitting performance over plasmonic Al@TiO<sub>2</sub> heterostructured nanocavity arrays”, *Nano Energy*, **51**, 400 (2018).
- Y. Yang, A. Kushima, W. Han, H. L. Xin, and J. Li, “Liquid-like, self-healing aluminum oxide during deformation at room temperature”, *Nano Lett.*, **14**, 2492 (2018).
- P. Kao, K. A. Dahmen, A. Kushima, W. J. Wright, H. S. Park, M. P. Short, and S. Yip, “Nanomechanics of Slip Avalanches in Amorphous Plasticity”, *J. Mech. Phys. Solid*, 114, 158 (2018).
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