



Kevin N. Wood

Assistant Professor

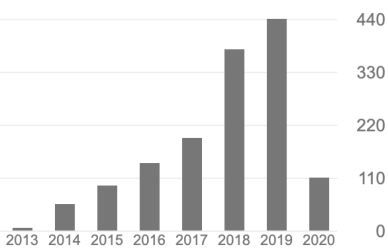
Profile

Dr. Wood specializes in electrochemical energy storage devices (including current/next generation batteries and low temperature fuel cells) as well as interfacial design, electrochemistry, corrosion and additive manufacturing. For more information please visit the [Interfacial Design Lab webpage](#).

Publications

Cited by

	All	Since 2015
Citations	1426	1359
h-index	14	13
i10-index	17	14



Get in Touch



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[Researchgate.net/profile/Kevin_Wood5](https://www.researchgate.net/profile/Kevin_Wood5)

<https://twitter.com/InterfaceSDSU>

Professional Experience

San Diego State University / Assistant Professor

August 2018 / Present

Principle investigator of the Interfacial Design Lab. Laboratory consists of 1 post-doctoral researcher, 6 graduate students, and 10 undergraduate students. Teaching areas include, materials engineering, thermodynamics, and battery science

National Renewable Energy Laboratory / Researcher

January 2017 / July 2018

Part of National Laboratory consortium on Si anode battery development and developed novel operando XPS/SIMS technique for Li and solid electrolyte battery materials research. Also held adjunct appointment at the Colorado School of Mines

University of Michigan / Post-Doctoral Researcher

October 2014 / December 2016

Worked as a member of the Joint Center for Energy Storage Research (JCESR) and as part of an Advanced Research Projects Agency (ARPA-E) solid electrolyte battery project. Advisors Neil Dasgupta and Jeff Sakamoto.

Education

Ph.D. Materials Science / Colorado School of Mines

2014

Dissertation: Improving the durability of methanol oxidation reaction electro-catalysts through the modification of carbon architectures

M.E. Metallurgical Engineering / Colorado School of Mines

2012

Dissertation: Effect of halide-modified model supports on precious metal catalyst stability

B.S. Physics / Colorado School of Mines

2010

Undergraduate Research on superhydrophobicity, microfluidics, photosensitive smart surfaces, and stressed liquid crystal displays

Focus Areas

- Corrosion
- Batteries
- Interfacial Engineering
- Fuel cells
- Electrochemistry
- Materials

Capabilities

- Electrochemical Characterization (8 potentiostat channels)
- TEM
- SEM
- XPS
- XRD
- FTIR
- Raman
- Glovebox (11 gloves)
- 24 cell cycling channels
- Optical Microscopy
- Gas Chromatography
- Custom cell for multi-technique operando characterization

\$ Grant Funding

Total-to-date: **\$475,000**

- **Industry Funding / Belenos Clean Energy Holdings** -----\$230,000
2020 -awaiting funds
Title: Fundamental understanding and improvement of lithium through a metallurgical approach
- **DOE SEIsta / National Renewable Energy Laboratory** -----\$30,000
2020 -awaiting funds
Title: Towards and Improved understanding of lithiation in Silicon and SiO₂
- **CACFU / California State University** -----\$180,000
2019
Title: XPS Proposal to Support Research, Creative Activities and Core Facility Upgrades
- **STEM-NET / California State University** -----\$25,000
2019
Title: Preventing Ion 'Bunching' in Metal Anode Batteries Through Informed Separator Design
- **University Grants Program / San Diego State University** -----\$10,000
2018
Title: Cold Spray Development for Additive Manufacturing

Select Publications

1. **Wood, K. N.**; Teeter, G. XPS on Li-Battery-Related Compounds: Analysis of Inorganic SEI Phases and a Methodology for Charge Correction. *ACS Appl. Energy Mater.* 2018, 1 (9), 4493–4504. <https://doi.org/10.1021/acsaem.8b00406>
2. **Wood, K. N.**; Steirer, K. X.; Hafner, S. E.; Ban, C.; Santhanagopalan, S.; Lee, S.-H.; Teeter, G. Operando X-Ray Photoelectron Spectroscopy of Solid Electrolyte Interphase Formation and Evolution in Li2S-P2S5 Solid-State Electrolytes. *Nat. Commun.* 2018, 9 (1), 2490. <https://doi.org/10.1038/s41467-018-04762-z>
3. Chen, K.-H.; **Wood, K. N.**; Kazyak, E.; LePage, W. S.; Davis, A. L.; Sanchez, A. J.; Dasgupta, N. P. Dead Lithium: Mass Transport Effects on Voltage, Capacity, and Failure of Lithium Metal Anodes. *J. Mater. Chem. A* 2017, 5 (23), 11671–11681. <https://doi.org/10.1039/C7TA00371D>
4. **Wood, K. N.**; Noked, M.; Dasgupta, N. P. Lithium Metal Anodes: Toward an Improved Understanding of Coupled Morphological, Electrochemical, and Mechanical Behavior. *ACS Energy Lett.* 2017, 2 (3), 664–672. <https://doi.org/10.1021/acsenerylett.6b00650>
5. **Wood, K. N.**; Kazyak, E.; Chadwick, A. F.; Chen, K.-H.; Zhang, J.-G.; Thornton, K.; Dasgupta, N. P. Dendrites and Pits: Untangling the Complex Behavior of Lithium Metal Anodes through Operando Video Microscopy. *ACS Cent. Sci.* 2016, 2 (11), 790–801. <https://doi.org/10.1021/acscentsci.6b00260>
6. Kazyak, E.; **Wood, K. N.**; Dasgupta, N. P. Improved Cycle Life and Stability of Lithium Metal Anodes through Ultrathin Atomic Layer Deposition Surface Treatments. *Chem. Mater.* 2015, 27 (18), 6457–6462. <https://doi.org/10.1021/acs.chemmater.5b02789>
7. **Wood, K. N.**; O'Hayre, R.; Pylpenko, S. Recent Progress on Nitrogen/Carbon Structures Designed for Use in Energy and Sustainability Applications. *Energy Environ. Sci.* 2014, 7 (4), 1212. <https://doi.org/10.1039/c3ee44078h>

Select Patents

1. **Wood, K.**; Dasgupta, N.; Kazyak, E.; Chen, K.-H. Method of Improved Performance in Metal Electrodes For Batteries. [US20190131622A1](https://patents.google.com/patent/US20190131622A1), 2019.