

Mechanical Engineering Seminar Series

October 13, 2026 2:00PM

Dean's Conference Room, E 203E

Title: Spacecraft Energy Storage Systems Enabling Operation in Extreme Environments

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Abstract: While most spacecraft power subsystems rely on aerospace-grade battery modules built from commercial lithium-ion cells, certain NASA missions face extreme environments such as high radiation on Europa, high temperature on the Venus surface, low temperature at high latitudes on Mars, and intense mechanical loads during entry, descent, and landing on Mars. These conditions would cause conventional cells to fail, thus necessitating the use of specialized spacecraft batteries tailored to these environments. This presentation describes examples of JPL's technology pathway used to design, develop, test, and operate robust spacecraft batteries capable of surviving these extreme conditions.

Bio: Dr. Will West is a Principal Technologist and Technical Group Lead in JPL's Photovoltaic, Electrochemical and Thermoelectric Systems Group. He has worked at JPL for 27 years as Principal Investigator, Task Manager, and Cognizant Engineer for numerous research and technology development and flight programs related to electrochemistry and energy storage/conversion. After completing his undergraduate degree in Chemical Engineering and Ph.D. in Materials Science Engineering, Dr. West served as a Postdoctoral Scholar at Caltech and JPL. He has worked as Prototyping Co-Lead at Caltech's Joint Center for Artificial Photosynthesis, consultant or technical advisor for numerous companies, expert witness for the U. S. Department of Justice, lecturer at California State Polytechnic University-Pomona, and Associate Professor at Nagoya University (Japan). He holds 37 U.S. and international patents, is author/co-author on approximately 90 journal articles and 130 conference presentations, and co-edited/co-authored the Handbook of Solid-State Batteries.