

Pankow Foundation awards grant to study electric vehicle impact on parking structure design

The Charles Pankow Foundation along with several partners has awarded a new research grant to understand the recent and impending market penetration of electric vehicles, which has created a situation in which current design live loads for parking may not adequately reflect true real-world loading.

The Pankow Foundation says that although parking structure live loads have been the subject of limited research over the past 50 years, there is currently a paradigm shift with the introduction and potential eventual domination of electric vehicles. The additional weight of these vehicles compared with internal combustion engine cars and the selective alignment with charging aisles calls for a thorough probabilistic and data-driven analysis of the safety of current standards. Specifically, it is unclear whether the existing parking structure live load of 40 pounds per ft² (4 m²) is acceptable for future parking structures.

Principal investigators of RGA #05-24, “Safe and Sustainable Parking Garage Live Loads in The Age of the Electric Vehicle,” are Ross Corotis of the University of Colorado Boulder and Sanjay R. Arwade of the University of Massachusetts. The ASCE 7-28 Dead and Live Load Subcommittee of ASCE/SEI, the Structural Engineers Association of New York, the New York City Department of Buildings, and others have already committed to be involved in this important and timely research.

—Source: Charles Pankow Foundation

Wavelogix receives National Science Foundation grant

Wavelogix, a manufacturer of novel, patented concrete strength sensors invented at Purdue University’s College of Engineering, has received a \$999,910 Small Business Innovation Research (SBIR) phase II grant from the National Science Foundation’s Directorate for Technology, Innovation and Partnerships (TIP).

The grant covers a two-year project scheduled to end August 31, 2026.

Luna Lu, Purdue’s Reilly Professor in the Lyles School of Civil and Construction Engineering and Wavelogix founder, invented the Rebel Concrete Strength Sensing System. The technology enables faster data-driven decisions through real-time concrete strength monitoring.

“Built on the success of a phase I SBIR project, this TIP-funded project will develop a complete solution for scaling up production,” Lu says. “A systematic hardware production and quality control procedure will be established, and key parameters for a reproducible production line will be determined.”

Concurrently, Wavelogix is developing a scalable cloud back end capable of serving tens of thousands of data loggers while ensuring data security and low latency.

“The machine learning algorithm is being refined to provide fast and accurate strength inferences,” Lu says. “A full-scale production and stress testing of the sensor system in real-life conditions are also being conducted to evaluate the robustness and user experience.”

The Rebel concrete strength sensor from Wavelogix communicates to engineers via a smartphone app exactly when pavement is strong enough to handle heavy traffic.

—Source: Stever Martin, Purdue University

INDUSTRY CALENDAR



Event details are subject to change.

ACI Concrete Convention Marriott Philadelphia Downtown, Philadelphia, Pa.	November 3-6, 2024
fib Symposium 2024 Christchurch, New Zealand	November 11-13, 2024
Greenbuild 2024 Pennsylvania Convention Center, Philadelphia, Pa.	November 12-15, 2024
ACI Concrete Convention Sheraton Centre Toronto, Toronto, ON, Canada	March 30-April 3, 2025
SEI Structures Congress 2025 Phoenix, Ariz.	April 9-11, 2025
PTI Convention Phoenix, Ariz.	May 4-7, 2025
fib Symposium 2025 Antibes, France	June 16-18, 2025
PTI 2025 Committee Days Cancun, Mexico	September 30- October 3, 2025
ACI Concrete Convention Hilton Baltimore & Marriott Baltimore Inner Harbor, Baltimore, Md.	October 26-30, 2025
fib Congress 2026 Abu Dhabi, United Arab Emirates	March 27-April 3, 2026
ACI Concrete Convention Hyatt Regency O'Hare, Rosemont, Ill.	March 29-April 2, 2026
PTI 2026 Committee Days Cancun, Mexico	September 29- October 2, 2026
ACI Concrete Convention Hilton Atlanta, Atlanta, Ga.	October 11-15, 2026
ACI Concrete Convention Caesars Palace Las Vegas, Las Vegas, Nev.	March 21-24, 2027
ACI Concrete Convention Caribe Royale Orlando, Orlando, Fla.	October 24-27, 2027
ACI Concrete Convention Seattle Convention Center & Sheraton Grand Seattle Hotel, Seattle, Wash.	April 2-5, 2028

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