

SEPTEMBER 2025



### **Charging up to build batteries**

Big Bend Community College students explore battery fabrication at the Washington Clean Energy Testbeds.



#### **Engineering power conversion systems for emerging technologies**

CEI Member Faculty Assistant Professor Jungwon Choi is bridging state-of-the-art power electronics and the needs of modern technology.



#### **Mechanical Engineers in sustainability**

These recent projects from CEI researchers in mechanical engineering aim to make manufacturing processes more environmentally friendly, improve renewable energy technologies, and reduce plastic waste.



#### **K-14 Engagement**

This spring, as part of its ongoing community engagement work, CEI co-hosted an all-day workshop for [STEM educators](#) at Seattle-area secondary schools as well as a day of hands-on activities and tours for 145 [sixth-grade students](#) from Washington Middle School in Seattle's Central District.



#### **Samson Jenekhe wins 2025 de Gennes Prize**

This Royal Society of Chemistry prize recognizes CEI Member Faculty Professor Jenekhe's outstanding contributions to synthetic chemistry, physics, and applications of conjugated polymers.



### **Jiaqi Cai receives UW Graduate Medal in the Natural Sciences**

CEI Graduate Fellow Cai's doctoral research has led to a landmark discovery in condensed matter physics: the experimental realization of the fractional quantum anomalous Hall effect (FQAH) — a phenomenon long theorized but never before observed.



### **Doris Hung & Hareesh Iyer receive Clean Energy Student Achievement Awards**

CEI Graduate Fellow Hung was recognized with the Scientific Achievement Award for developing new computational modeling tools and data analysis approaches for the design of lithium-ion battery (LIB) electrodes with three-dimensional (3D) architectures — a promising technology for low-cost and long-range electric vehicles. CEI Graduate Fellow Iyer received the Clean Energy Community Engagement & Service Award for his dedication and creativity when engaging a variety of audiences in STEM.

## RESEARCH HIGHLIGHTS

### **A Comparative Evaluation of Polymer-Modified Rapid-Set Calcium Sulfoaluminate Concrete: Bridging the Gap Between Laboratory Shrinkage and the Field Strain Performance**

*Buildings*

### **Portland Limestone Cement in Concrete Pavement and Bridge Decks: Performance Evaluation and Future Directions**

*Buildings*

### **From Mining to Manufacturing: Scientific Challenges and Opportunities behind Battery Production**

*Chemical Reviews*

### **Vapor Phase Infiltration for Membrane Modification**

*Chemistry of Materials*

### **Synthesis, assembly, and electrochemical performance of ultrasmall $\text{Sb}_2\text{S}_3$ nanoparticles**

*Journal of Materials Chemistry A*

### **Mechanical characterization of bend-twist coupling behavior in composite marine hydro-kinetic turbine blades**

*Marine Structures*

### **Anomalous Hysteresis in Graphite/Boron Nitride Transistors**

*Nano Letters*

### **Engineering Robust Strain Transmission in van der Waals Heterostructure Devices**

*Nano Letters*

### **Microscopic signatures of topology in twisted $\text{MoTe}_2$**

*Nature Physics*

### **Strongly interacting Hofstadter states in magic-angle twisted bilayer graphene**

*Nature Physics*

[Strain-programmable van der Waals magnetic tunnel junctions](#)

*Newton*

[Poor reliability of public charging stations can impede the growth of the electric vehicle market](#)

*Transport Policy*

## EVENTS

Save the Date - October 30: Clean Energy Entrepreneur Workshop @ [Washington Clean Energy Testbeds](#)

**[CEI Interdisciplinary Seminars](#)**, 4pm-5pm in NanoES 181:

October 16: Jay Whitacre, Trustee Professor in Energy with joint appointment in Engineering & Public Policy and Materials Science & Engineering, Carnegie Mellon University

October 30: Geraldine L. Richmond, Presidential Chair of Science & Professor of Chemistry, University of Oregon

November 6: Alex Gagnon, Associate Professor of Oceanography, University of Washington

November 20: Sarah Tolbert, Professor of Chemistry & Biochemistry, UCLA

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