ENERGY PROCESSES AND MATERIALS DIVISION



Enabling a secure energy future through innovation in materials and process engineering

CAPABILITIES

Electrochemical Materials and Systems

Biomass and Other Hydrocarbon Conversions

Applied Materials and Manufacturing

Advanced Separations Technologies



MISSION

We enable a sustainable, secure energy future through innovation in materials and process engineering.



WHO WE ARE

The Energy Processes and Materials Division is focused on creating and delivering real-world solutions that bring us closer to realizing the U.S. Department of Energy's (DOE's) goals for national energy security. We accomplish this by leveraging the deep capabilities in science and engineering at Pacific Northwest National Laboratory to deliver new technologies that bridge the gap between fundamental discovery and industryrelevant demonstration. Our researchers are making a difference in areas such as battery technologies, advanced metals manufacturing, biomass conversions, carbon capture and utilization, applied catalysis, advanced separations, and hydrogen production and storage.

WE ENCOURAGE BOLD NEW IDEAS AND BUILD ENDURING CAREERS

Exceptional People

We provide the tools that enable exceptional people to accomplish extraordinary things in a collaborative research environment. Our people are our most valuable asset.

Stakeholder Focused

We seek to accelerate the research discovery, development, and deployment cycle by engaging prospective end-users early in the process. Through close collaboration with industry partners and other stakeholders, we develop a real-world understanding of what success must look like.

Trusted Performance

Our goal is to exceed our stakeholder's expectations 100 percent of the time.

KEY FACILITIES



TECHNICAL GROUPS



Applied catalysts

energy conversion

Design, prototyping, and manufacturing Reliability, codes, and cost Biofuels and bioproducts development Hydrothermal liquefaction Catalytic transformations Fungal biotechnology and conversion Waste and plastics conversion

Our Advanced Energy Systems group

develops new processes and materials to convert fuels and wastes into more useful and better products. We've con-

verted coal, natural gas, oil, biomass, and wastes to usable fuels, chemicals, and electricity and created solvents to capture carbon dioxide. Our microchannel heat exchangers and advanced engine exhaust catalysts are now at work in the commercial sector.

Our Applied Materials and Manufacturing

group delivers materials solutions for next-generation technologies. We create scalable approaches to produce lightweight materials with less energy and

superior performance, including a new, solidphase processing manufacturing approach for metals called ShAPE[™]. Our group develops robust materials for hydrogen storage and distribution and advances solid-oxide fuel cell technology.



Our Battery Materials and Systems group works to improve the resiliency, reliability, and efficiency of the electric grid through innovations in energy storage. The group also leads national efforts, such as the Battery 500 Consortium, to address fundamental advancements that will enable next-generation battery technologies for electrical vehicles and other applications.

Our Chemical and Biological Processing

group creates opportunities from economic and ecological liabilitiesdeveloping and demonstrating new ways to use wastes, plastics, and biomass to make fuels and chemicals. These include technologies based on a fundamental understanding of fungi and microbes. We thrive on moving ideas from fundamental scientific understanding through commercialization.





ABOUT PNNL

Pacific Northwest National Laboratory draws on signature capabilities in chemistry, Earth sciences, and data analytics to advance scientific discovery and create solutions to the nation's toughest challenges in energy resiliency and national security. Founded in 1965, PNNL is operated by Battelle for the U.S. Department of Energy's Office of Science. DOE's Office of Science is the single largest supporter of basic research in the physical sciences in the United States and is working to address some of the most pressing challenges of our time.

CAREERS

Our staff include highly cited authors and distinguished inventors who are actively engaged in professional societies and collaborate with scientists and engineers at other institutions. We are always on the lookout for new talent.

View PNNL job listings at: https://www.pnnl.gov/careers

CONTACTS

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