
Project Listings by State

Section Key

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| H2F | Hydrogen Fuel R&D |
| FC | Fuel Cell R&D |
| INS | Infrastructure and Systems R&D |
| SCS | Safety, Codes and Standards |

Arizona

H2F Arizona State University: HydroGEN Seedling: Mixed Ionic Electronic Conducting Quaternary Perovskites: Materials by Design for Solar Thermochemical Hydrogen

California

H2F Liox Power: HyMARC Seedling: Electrolyte Assisted Hydrogen Storage Reactions

H2F Sandia National Laboratories, National Renewable Energy Laboratory: HyMARC: A Consortium for Advancing Hydrogen Storage Materials

H2F Stanford University: HydroGEN Seedling: Protective Catalyst Systems on III-V and Si-Based Semiconductors for Efficient, Durable Photoelectrochemical Water Splitting Devices

FC Lawrence Berkeley National Laboratory: Lab Call FY18 (Membrane): Stable Alkaline Membrane Based on Proazaphosphatranes Organic Super Base

FC Lawrence Berkeley National Laboratory: Lab Call FY18 (Reversible Fuel Cell): Technology-Enabling Materials, Cell Design for Reversible Proton Exchange Membrane Fuel Cells

FC Lawrence Berkeley National Laboratory: Novel Bifunctional Electrocatalysts, Supports, and Membranes for High Performing and Durable Unitized Regenerative Fuel Cells

FC Lawrence Livermore National Laboratory: Molten Hydroxide Dual-Phase Membranes for Intermediate Temperature Anion Exchange Membrane Fuel Cells

INS Electricore: Innovative Advanced Hydrogen Mobile Fueler

INS General Engineering & Research, LLC: Low-Cost Magnetocaloric Materials Discovery

INS Lawrence Berkeley National Laboratory: Integrated Systems Modeling of the Interactions between Stationary Hydrogen, Vehicle, and Grid Resources

INS Sandia National Laboratories: H-Mat Overview: Steels

INS Sandia National Laboratories: Metal Hydride Compression

INS Sandia National Laboratories: Maritime Fuel Cell Generator Project

SCS Sandia National Laboratories: R&D for Safety, Codes and Standards: Materials and Components Compatibility

SCS Sandia National Laboratories: R&D for Safety, Codes and Standards: Hydrogen Behavior

Colorado

H2F Colorado School of Mines: HydroGEN Seedling: Accelerated Discovery of Solar Thermochemical Hydrogen Production Materials via High-Throughput Computational and Experimental Methods

H2F National Renewable Energy Laboratory: HydroGEN Overview: A Consortium on Advanced Water-Splitting Materials

H2F National Renewable Energy Laboratory: Industrially Scalable Waste CO₂ Reduction to Useful Chemicals and Fuels

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| H2F | National Renewable Energy Laboratory: BioHydrogen (BioH ₂) Consortium to Advance Fermentative Hydrogen Production |
| H2F | University of Colorado Boulder: HydroGEN Seedling: Computationally Accelerated Discovery and Experimental Demonstration of High-Performance Materials for Advanced Solar Thermochemical Hydrogen Production |
| H2F | National Renewable Energy Laboratory: Hydrogen Storage System Modeling: Public Access, Maintenance, and Enhancements |
| H2F | National Renewable Energy Laboratory: HyMARC Seedling: Atomic Layer Deposition Synthesis of Novel Nanostructured Metal Borohydrides |
| H2F | National Renewable Energy Laboratory, Sandia National Laboratories: HyMARC: A Consortium for Advancing Hydrogen Storage Materials |
| FC | National Renewable Energy Laboratory: Advanced Ionomers and Membrane Electrode Assemblies for Alkaline Membrane Fuel Cells |
| FC | National Renewable Energy Laboratory: Lab Call FY18 (Membrane): Spirocyclic Anion Exchange Membranes for Improved Performance and Durability |
| FC | National Renewable Energy Laboratory: Lab Call FY18 (Reversible Fuel Cell): Bipolar Membrane Development to Enable Regenerative Fuel Cells |
| FC | National Renewable Energy Laboratory, Los Alamos National Laboratory: Membrane Working Group |
| INS | National Renewable Energy Laboratory: Dispenser Reliability |
| INS | National Renewable Energy Laboratory: Market Segmentation Analysis of Medium- and Heavy-Duty Trucks with a Fuel Cell Emphasis |
| INS | National Renewable Energy Laboratory: H ₂ @Scale Analysis |
| INS | National Renewable Energy Laboratory: Energy Storage Analysis |
| INS | National Renewable Energy Laboratory: Membrane Electrode Assembly Manufacturing R&D |
| INS | National Renewable Energy Laboratory: Material-Process-Performance Relationships in Polymer Electrolyte Membrane Catalyst Inks and Coated Layers |
| INS | National Renewable Energy Laboratory: Fuel Cell Bus Evaluations |
| INS | National Renewable Energy Laboratory: Hydrogen Station Data Collection and Analysis |
| INS | National Renewable Energy Laboratory: Optimal Stationary Fuel Cell Integration and Control (Energy Dispatch Controller) |
| INS | National Renewable Energy Laboratory: H ₂ @Scale: Experimental Characterization of Durability of Advanced Electrolyzer Concepts in Dynamic Loading |
| SCS | National Renewable Energy Laboratory: NREL Hydrogen Sensor Testing Laboratory |

Connecticut

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| H2F | University of Connecticut: HydroGEN Seedling: Proton-Conducting Solid Oxide Electrolysis Cells for Large-Scale Hydrogen Production at Intermediate Temperatures |
| H2F | United Technologies Research Center: HydroGEN Seedling: Thin-Film, Metal-Supported High-Performance, and Durable Proton-Solid Oxide Electrolyzer Cell |
| H2F | Proton Energy Systems: HydroGEN Seedling: High Efficiency Proton Exchange Membrane Water Electrolysis Enabled by Advanced Catalysts, Membranes, and Processes |
| H2F | Proton Energy Systems: HydroGEN: Benchmarking Advanced Water Splitting Technologies: Best Practices in Materials Characterization |

- H2F FuelCell Energy, Inc.: Proton-Conducting Ceramic Electrolyzers for High-Temperature Water Splitting
- FC United Technologies Research Center: High-Performance Polymer Electrolyte Fuel Cell Electrode Structures
- FC United Technologies Research Center: High-Performance Non-Platinum-Group-Metal Transition Metal Oxide Oxygen Reduction Reaction Catalysts of Polymer Electrolyte Membrane Fuel Cells
- INS FuelCell Energy, Inc.: Modular Solid Oxide Electrolysis Cell System for Efficient Hydrogen Production at High Current Density

Delaware

- FC Xergy Inc.: Novel Non-Perfluorosulfonic Acid Proton Exchange Membrane for Fuel Cell Application

Florida

- INS Mainstream Engineering: In-Line Quality Control of Polymer Electrolyte Membrane Materials

Georgia

- FC Georgia Institute of Technology: Durable, High-Performance Unitized Reversible Fuel Cells Based on Proton Conductors
- INS Center for Transportation and the Environment: Fuel Cell Hybrid Electric Delivery Van

Hawaii

- H2F University of Hawaii: HydroGEN Seedling: Novel Chalcopyrites For Advanced Photoelectrochemical Water Splitting
- H2F University of Hawaii: HyMARC Seedling: Development of Magnesium Boride Etherates as Hydrogen Storage Materials

Idaho

- INS Idaho National Laboratory: Dynamic Modeling and Validation of Electrolyzers in Real-Time Grid Simulation
- INS Idaho National Laboratory: High-Temperature Electrolysis Test Stand

Illinois

- H2F Argonne National Laboratory: HydroGEN Seedling: Platinum-Group-Metal-Free Oxygen Evolution Reaction Catalysts for Proton Exchange Membrane Electrolyzers
- H2F Argonne National Laboratory: System Analysis of Physical and Materials-Based Hydrogen Storage
- H2F Northwestern University: HydroGEN Seedling: Degradation Characterization and Modeling of a New Solid Oxide Electrolysis Cell Utilizing Accelerated Life Testing
- H2F Northwestern University: HydroGEN Seedling: Transformative Materials for High-Efficiency Thermochemical Production of Solar Fuels
- FC Argonne National Laboratory: Tailored High-Performance Low-Platinum-Group-Metal Alloy Cathode Catalysts
- FC Argonne National Laboratory: Lab Call FY19: Polymer Electrolyte Fuel Cell Electrode Structures with Encased Catalysts to Eliminate Ionomer Adsorption on Catalytic Sites
- FC Argonne National Laboratory, Los Alamos National Laboratory: ElectroCat (Electrocatalysis Consortium)

- FC Argonne National Laboratory: Highly Efficient and Durable Cathode Catalyst with Ultralow Platinum Loading through Synergetic Platinum/Platinum-Group-Metal-Free Catalytic Interaction
- FC Argonne National Laboratory: Performance and Durability of Advanced Automotive Fuel Cell Stacks and Systems with State-of-the-Art d-PtCo/C Cathode Catalyst in Membrane Electrode Assemblies
- FC Northwestern University: Efficient Reversible Operation and Stability of Novel Solid Oxide Cells
- INS Argonne National Laboratory: Analysis of Fuel Cells for Trucks
- INS Argonne National Laboratory: Cost Benefit Analysis of Technology Improvements in Medium- and Heavy-Duty Fuel Cell Vehicles
- INS Argonne National Laboratory: Analysis of Cost Impacts of Integrating Advanced On-Board Storage Systems with Hydrogen Delivery
- INS Argonne National Laboratory: Hydrogen Demand Analysis for H2@Scale

Indiana

- FC Indiana University Purdue University Indianapolis: Mesoporous Carbon-Based Platinum-Group-Metal-Free Catalyst Membrane Electrode Assemblies

Kansas

- FC University of Kansas: Stationary Direct Methanol Fuel Cells Using Pure Methanol

Kentucky

- H2F University of Kentucky Center for Applied Energy Research: Precursor Processing Development for Low-Cost, High-Strength Carbon Fiber for Composite Overwrapped Pressure Vessel Applications

Massachusetts

- H2F Giner, Inc.: High-Temperature Alkaline Water Electrolysis
- H2F Northeastern University: HydroGEN Seedling: Developing Novel Platinum-Group-Metal-Free Catalysts for Alkaline Hydrogen and Oxygen Evolution Reactions
- H2F Saint-Gobain: HydroGEN Seedling: Development of Durable Materials for Cost Effective Advanced Water Splitting Utilizing All Ceramic Solid Oxide Electrolyzer Stack Technology
- FC Advent Technologies, Inc.: Facilitated Direct Liquid Fuel Cells with High-Temperature Membrane Electrode Assemblies
- FC Giner, Inc.: ElectroCat: Durable Mn-Based Platinum-Group-Metal-Free Catalysts for Polymer Electrolyte Membrane Fuel Cells
- FC Giner, Inc.: FY18 SBIR IIB: Ionomer Dispersion Impact on Advanced Fuel Cell and Electrolyzer Performance and Durability
- FC Giner, Inc.: High-Efficiency Reversible Alkaline Membrane Fuel Cells
- FC Northeastern University: Developing Platinum-Group-Metal-Free Catalysts for Oxygen Reduction Reaction in Acid: Beyond the Single Metal Site
- INS Giner ELX, Inc.: Electrochemical Compression
- INS GVD Corporation: Coatings for Compressor Seals
- INS Ivys Energy Solutions: Advancing Hydrogen Dispenser Technology by Using Innovative Intelligent Networks

Michigan

- FC Ford Motor Company: Vapor Deposition Process for Engineering of Dispersed Polymer Electrolyte Membrane Fuel Cell Oxygen Reduction Reaction Pt/NbO_x/C Catalysts
- FC General Motors: Highly Accessible Catalysts for Durable High-Power Performance
- FC General Motors: Durable High-Power Membrane Electrode Assemblies with Low Platinum Loading
- H2F University of Michigan: HydroGEN Seedling: Monolithically Integrated Thin-Film/Silicon Tandem Photoelectrodes for High Efficiency and Stable Photoelectrochemical Water Splitting
- H2F University of Michigan: HyMARC Seedling: Optimized Hydrogen Adsorbents via Machine Learning and Crystal Engineering

Minnesota

- FC 3M Company: Highly Active, Durable, and Ultra-Low-Platinum-Group-Metal Nanostructured Thin Film Oxygen Reduction Reaction Catalysts and Supports
- FC 3M Company: Novel Ionomers and Electrode Structures for Improved Polymer Electrolyte Membrane Fuel Cell Electrode Performance at Low Platinum Group Metal Loadings
- INS 3M Company: Low-Cost, High-Performance Catalyst Coated Membranes for Proton Exchange Membrane Water Electrolyzers

Missouri

- FC Washington University in St. Louis: Corrosion-Resistant Non-Carbon Electrocatalyst Supports for Polymer Electrolyte Fuel Cells

New Jersey

- H2F Rutgers University: HydroGEN Seedling: Best-in-Class Platinum-Group-Metal-Free Catalyst Integrated Tandem Junction Photoelectrochemical Water Splitting Devices
- FC TreadStone Technologies, Inc.: Novel Structured Metal Bipolar Plates for Low-Cost Manufacturing

New Mexico

- H2F Los Alamos National Laboratory: HydroGEN Seedling: High-Performance Ultralow-Cost Non-Precious Metal Catalyst System for Anion Exchange Membrane Electrolyzer
- H2F Los Alamos National Laboratory: HydroGEN Seedling: Scalable Elastomeric Membranes for Alkaline Water Electrolysis
- FC Los Alamos National Laboratory: Advanced Electrocatalysts through Crystallographic Enhancement
- FC Los Alamos National Laboratory: Lab Call FY19: Accessible Platinum-Group-Metal-Free Catalysts and Electrodes: ElectroCat
- FC Los Alamos National Laboratory, Argonne National Laboratory: ElectroCat (Electrocatalysis Consortium)
- FC Los Alamos National Laboratory: Advanced Materials for Fully-Integrated Membrane Electrode Assemblies in Anion Exchange Membrane Fuel Cells
- FC Los Alamos National Laboratory: Lab Call FY18 (Membrane): High Performing and Durable Pyrophosphate-Based Composite Membranes for Intermediate-Temperature Fuel Cells
- FC Los Alamos National Laboratory, National Renewable Energy Laboratory: Membrane Working Group
- FC Los Alamos National Laboratory: FC-PAD: Fuel Cell Performance and Durability Consortium

- FC Los Alamos National Laboratory: Lab Call FY18 (Reversible Fuel Cell): Microstructured Electrodes and Diffusion Layers for Enhanced Transport in Reversible Fuel Cells
- FC Los Alamos National Laboratory: Lab Call FY19: Low-Cost Gas Diffusion Layer Materials and Treatments for Durable High-Performance Polymer Electrolyte Membrane Fuel Cells
- FC Pajarito Powder: Active and Durable Platinum-Group-Metal-Free Cathodic Electrocatalysts for Fuel Cell Application
- FC Sandia National Laboratories: Lab Call FY19: Electrode Ionomers for High Temperature Fuel Cells
- INS Sandia National Laboratories: Hydrogen Stations for Urban Sites
- SCS Los Alamos National Laboratory: Fuel Quality Assurance R&D and Impurity Testing in Support of Codes and Standards
- SCS Sandia National Laboratories: Hydrogen Quantitative Risk Assessment

New York

- FC Brookhaven National Laboratory: Platinum Monolayer Electrocatalysts
- FC Rensselaer Polytechnic Institute: Cyclic Olefin Copolymer-Based Alkaline Exchange Polymers and Reinforced Membranes

Ohio

- FC pH Matter LLC: FY18 SBIR Phase II Release 1: Multi-Functional Catalyst Support

Oregon

- H2F Oregon State University: Novel Hybrid Microbial Electrochemical System for Efficient Hydrogen Generation from Biomass

Pennsylvania

- H2F Pennsylvania State University: Developing a New Polyolefin Precursor for Low-Cost, High-Strength Carbon Fiber
- FC Carnegie Mellon University: ElectroCat: Advanced Platinum-Group-Metal-Free Cathode Engineering for High Power Density and Durability
- FC Drexel University: Polymerized Ionic Liquid Block Copolymer/Ionic Liquid Composite Ionomers for High Current Density Performance
- FC Pennsylvania State University: Advanced Anion Exchange Membranes with Tunable Water Transport for Platinum-Group-Metal-Free Anion Exchange Membrane Fuel Cells

South Carolina

- FC Greenway Energy, LLC: ElectroCat: Platinum-Group-Metal-Free Engineered Framework Nano-Structure Catalysts
- INS Clemson University: Laser 3-D Printing of Highly Compacted Protonic Ceramic Electrolyzer Stack

Tennessee

- H2F Oak Ridge National Laboratory: Novel Plasticized Melt Spinning Process of Polyacrylonitrile Fibers Based on Task-Specific Ionic Liquids
- FC Vanderbilt University: Fuel Cell Membrane Electrode Assemblies with Platinum-Group-Metal-Free Nanofiber Cathodes
- FC Vanderbilt University: Composite Polymer Electrolyte Membranes from Electrospun Crosslinkable Poly(Phenylene Sulfonic Acid)s

FC Vanderbilt University: Fuel Cell Membrane Electrode Assemblies with Ultra-Low-Platinum Nanofiber Electrodes

Texas

INS Southwest Research Institute: Hydrogen Compression Application of the Linear Motor Reciprocating Compressor

Virginia

H2F Strategic Analysis, Inc.: Analysis of Advanced Hydrogen Production Pathways

H2F Strategic Analysis, Inc.: Hydrogen Storage Cost Analysis

FC Nanosonic, Inc.: FY17 SBIR II Release 1: Novel Hydrocarbon Ionomers for Durable Polymer Electrolyte Membranes

FC Strategic Analysis, Inc.: Fuel Cell Systems Analysis

INS NanoSonic, Inc.: Cryogenically Flexible, Low Permeability Hydrogen Delivery Hose

Washington

H2F Pacific Northwest National Laboratory: Materials Challenges for Cryogenic Hydrogen Storage Technologies

FC Pacific Northwest National Laboratory: ElectroCat: Highly Active and Durable Platinum-Group-Metal-Free Oxygen Reduction Reaction Electrocatalysts through the Synergy of Active Sites

FC Pacific Northwest National Laboratory: Lab Call FY19: Solid Phase Processing for Reduced Cost and Improved Efficiency of Bipolar Plates

INS Pacific Northwest National Laboratory: Magnetocaloric Hydrogen Liquefaction

SCS Pacific Northwest National Laboratory: Hydrogen Safety Panel, Safety Knowledge Tools, and First Responder Training Resources

SCS Pacific Northwest National Laboratory: H-Mat Overview: Polymers

West Virginia

H2F West Virginia University: HydroGEN Seedling: Intermediate Temperature Proton-Conducting Solid Oxide Electrolysis Cells with Improved Performance and Delivery