

This is a “prioritized” IP list for Open Voucher Call from some of the participating labs. That means that the IP is either prime for commercialization/further along than other IP, the IP aligns with the topic areas that the labs have identified for the call, or it is IP that is aligned with researchers that have been identified to assist with the vouchers.

However, all National Lab IP is open for submitting as a part of a submission. This list is just to serve as an additional resource.

## **AMES**

- [Acid-Free dismantling of permanent magnets to extract rare earth elements](#)
- [Mechanochemical Recovery of Co, Li, and Other Essential Components from Spent Lithium-ion Batteries](#)
- [Carbothermic-Silicide Method of Preparing Rare Earth Master Alloys Containing 5 to 40 atomic percent Silicon from the Respective oxides](#)
- [Electrocatalyst for water electrolysis](#)
- [Ni-Co-Mn-Ti Intermetallics with enhanced magnetocaloric properties prepared by combination of different methods](#)
- [Feedstock and heterogeneous structure for tough rare earth permanent magnets and production process thereof](#)
- [Alignment Promoted in heat treatable magnets through application of external applied magnet field at the start of binder-assisted molding](#)
- [Metamaterials-based device for generation of broadband THz radiation](#)
- [Improved stability of gas atomized reactive powders through multiple step in-situ passivation](#)
- [low-cost production method for alloys used in harsh environments](#)

## **ANL**

- [Heat Transfer Fluids Containing Nanoparticles US Patent 9,340,720 B2](#)
- [System for cooling hybrid vehicle electronics, method for cooling hybrid vehicle electronics US Patent 9,826,666](#)

- “DEPOWDERING OF 3D PRINTED OBJECTS WITH COMPLEX INTERNAL GEOMETRIES” US Patent Application 2022/0168950
- Thermal Energy Storage Patents
- US patent 10,533,808 “Inverse latent heat thermal energy storage system, method for capturing and releasing latent heat”
- US patent 10,330,393 “Modular Latent Heat Thermal Energy Storage Systems”
- US Patent 11,499,785 “Combined Thermal Energy Storage and Heat Exchanger Unit”
- US Patent Application 2021/0278147 A1 "Additively manufactured modular heat exchanger accommodating thermal energy storage and high temperature, high pressure and corrosive fluids"
- US Patent Application 20200041216A1 “Method for buffering latent heat thermal energy”

#### Kris Pupek Materials Synthesis Patents

- Nanofiber Filter Medium for Reusable Facemask and Filtering Filter Facepiece Respirator (IN-20-055)
- Systems and Methods for Scale-up Synthesis Multi-Layered Pt-skin Nanoparticle Catalysts (IN-17-038)
- Procedures to Improve the Activity of Advanced Fuel Cell Catalysts (IN-18-138)
- Oxidation Driven Segregation Induced Core/Shell Structure as High Performance Fuel Cell Catalysts (IN-18-123)

#### **NREL**

- NREL 23-49 Modulating Preheat System (MPS) for Recovery Ventilation Systems
- NREL 19-134 and SWR 20-14 Heliostat Optical Error Detection
- NREL 19-93 Super-Adsorbing Thermo-Responsive Desiccants for Energy Efficiency and Thermal Comfort in Buildings
- NREL 17-11 Algae Derived Polyurethanes for Building and/or Vehicle Applications
- NREL 22-07 Genetically Engineered Bacterium for the Production of 3-HB
- NREL SWR-23-91 Technology Agnostic Loss and Life Informed Dispatch of Battery Assets (TALLIDEA)
- NREL SWR-22-73 Grid Impedance Scan Tool (GIST)
- NREL 14-95, *Non-Contact Electroluminescence Imaging of Outdoor Modules*
- NREL 18-71, *A Steady-State Microwave Photoconductance Action Spectrometer for Thin-Film Photovoltaic Materials*

## Sandia

- *SD16755; SD#16810, “Microencapsulated Catalysts for Improved Additive Manufacturing of Thermosets and Depolymerization of Rubber Polymers”; Patent #: US App 18/218,921; | Brad H. Jones, Samuel C. Leguizamon, Oleg Davydovich*
  - *[Chemical Recycling of Polybutadiene Rubber with Tailored Depolymerization Enabled by Microencapsulated Metathesis Catalysts](#)*
  - *[Encapsulated Transition Metal Catalysts Enable Long-term Stability in Frontal Polymerization Resins](#)*
- *SD15617, “Electro3D Printed Electronics”; US Patent Application Number 17/868,464 | Karl Walczak, Jon Height*
- *SD15832 “Selective Dual Wavelength Olefin Metathesis 3D Printing (SWOMP)”; US Patent Application 17/900,584 | Sam Leguizamon, Leah Appelhans, Adam Cook*
- *SD13935: “Fluid Infused Polymers”; patent 11584841 | Redline, Erica Marie*
- *<https://patents.google.com/patent/US11584841B1/en?q=EF%82%A711584841+>*
- *SD15669: 3D “Printable Super Alloys for high temp Applications”; Apl 17/803,779 filed 11/21/22 | Andrew Kustas*
- *SD14225: “Clay based PV coating to improve durability and performance”; patents 10002983 & 10150873 | Eric Schindelholz, Erik Spoerke, Neil Sorensen*
  - *[Nanocomposite Anti-Corrosion Coating](#)*
  - *[Nanocomposite conformal corrosion barrier coating](#)*
  - *[Nanocomposite conformal corrosion barrier coating \(alternative link\)](#)*
  - *[Nanocomposite barrier films for photovoltaic applications](#)*
- *SD14962: “Freeze-safe Heat Pipe Actuator for Very High Temperature Applications”; 17/152,415 filed 1/19/21 | Kenneth Armijo*
- *SD16406: “Solar Enhanced Agrivoltaics”; 18/369,922 filed 9/19/23 | Kenneth Armijo*
- *SD13537 (& SD13544) “Systems, Methods And Computer Program Products For Constructing Complex Geometries Using Layered And Linked Hexahedral Element Meshes”; Patent 10,657,301 Granted 5/19/2020; | Byoung Park, Barry L. Roberts, Steven R. Sobolik and Moo Y. Lee*

## ORNL

### ANALYTICAL INSTRUMENTATION

- *[Rapid Droplet Sampling Interface](#)*

### CARBON CAPTURE AND MANAGEMENT

- *[Carbon Dioxide Removal from Seawater](#)*
- *[Catalytic Porous Polymer for Selective Reduction of CO2](#)*
- *[Intensified Carbon Capture Using Buildings Infrastructure \(ICCB\)](#)*

### DETECTORS AND SENSORS

- *[Unintrusive Building Leakage Visualization and Measurement Using Background-Oriented Schlieren Photography](#)*

## ENERGY AND UTILITIES

- [Mechanically Robust Ion-Conducting Membranes for Redox Flow Batteries](#)
- [Mixed Plastic Recycling by a Tailored Organocatalyst](#)
- [Thermally Anisotropic Composites for Improved Thermal Management in Building Envelopes](#)
- [Ultraclean Condensing Furnace](#)

## HEALTHCARE AND BIOLOGY

- [Accelerating the Development of Orally Bioavailable Therapeutics for Beta-Coronaviruses with Structure-Based Molecular Design](#)
- [Methods for Immunoregulation by Modulating Plasminogen-Apple-Nematode \(PAN\) Domain-Containing Proteins](#)

## MANUFACTURING

- [Extrusion-Compression Method for Producing Bonded Permanent Magnets](#)

## MATERIALS

- [Insulation Foam Enabled by Synergistic Foaming Strategies](#)

## TRANSPORTATION

- [Predictive Traction Assist for Vehicles in Platooning Operations](#)