Funding Opportunities
November 14, 2022

Air Liquide / NineSights
Air Liquide Scientific Challenge in Favor of Decarbonization
Due: March 10, 2023

Summary: Air Liquide is launching today the third edition of its Air Liquide Scientific Challenge, designed to advance research in an open innovation approach. This new challenge aims to identify solutions allowing for the decarbonization of industrial ecosystems.

The Air Liquide Scientific Challenge is open to academic teams, private Research & Development departments, startups, and private or public Institutes. All are invited to submit through the **Challenge's website**, from November 3, 2022 to March 10, 2023, innovative scientific solutions to face the challenges linked to Energy Transition. Based on Essential Small Molecules, Data and related Technologies, the Scientific Challenge, a worldwide call for solutions to achieve the decarbonization of industrial ecosystems, is in line with the Group's objectives of decarbonization and technological innovation outlined in its strategic plan ADVANCE.

It addresses the three following topics:

- **Topic 1 Data sharing for decarbonization**: How to leverage confidential data from different stakeholders to meet shared sustainability targets?
- **Topic 2 Energy storage using Essential Small Molecules**: How to store and reuse energy using small molecules or processes to achieve net-zero?
- **Topic 3 Electric Heating for H2 production**: How to decarbonize the catalytic Steam Methane Reforming reaction by electric-based heating?.

Estimated Funding/Number of Awards: An Air Liquide scientific prize of 50,000 euros will be awarded to each of the laureate teams at the end of 2023. The Air Liquide Scientific Challenge aims to identify up to 3 laureates. The Group will support collaborations with a total funding of up to 1 million euros to develop the selected scientific proposals and transform them into market-tailored technologies.

Informational Webinar: December 1, 2022, 3:00 PM CET (9:00 am EST) | **Register**

Additional Information: **SCIENTIFIC CHALLENGE, EDITION 3**

Department of Energy, AMMTO-GTO
Lithium Extraction & Conversion from Geothermal Brines
Concept Paper: December 9, 2022 | Full: January 31, 2023

Summary: AMMTO and GTO are jointly issuing a Funding Opportunity Announcement of Lithium Extraction and Conversion from Geothermal Brines. This funding opportunity will spur the development of domestic lithium supply and refinement capacity to secure America's clean energy supply chains and increase U.S. manufacturing competitiveness abroad.

This FOA seeks to advance development of alternative next-generation technologies and field validation and demonstration of technologies that are capable of direct lithium extraction (DLE) from geothermal brines to lithium hydroxide (LiOH). Key technologies will leverage and optimize the use of geothermal plants and DLE technology to produce LiOH on a cost-competitive basis. This FOA seeks to leverage the technology and capabilities developed by academia including Minority Serving Institutions, entrepreneurs, research laboratories, and industry including small businesses.

Topic Areas:
- **Field Validation of Lithium Hydroxide Production from Geothermal Brines:** pilot or demonstration projects to validate cost-effective, innovative lithium extraction and lithium hydroxide conversion technologies. Lithium hydroxide is used in the manufacture of lithium battery electrodes.
- **Applied Research & Development for Direct Lithium Extraction from Geothermal Brines:** R&D projects to advance emerging direct lithium extraction process technologies to increase efficiency, reduce waste generation, and/or reduce cost.

Estimated Funding/Number of Awards: EERE anticipates making approximately 3 to 6 awards under this FOA. Individual awards may be up to $5 million for Topic Area 1 and up to $500,000 for Topic Area 2.

Additional Information: **DE-FOA-0002823**

Department of Energy, Office of Science

Artificial Intelligence and Machine Learning for Autonomous Optimization and Control of Accelerators and Detectors

Due: January 11, 2023

Summary: The DOE SC program in Nuclear Physics (NP) hereby announces its interest in receiving applications for research and development (R&D) efforts directed at artificial intelligence (AI) and machine learning (ML) for autonomous optimization and control of accelerators and detectors of relevance to current or next generation NP accelerator facilities and scientific instrumentation.

The general approach for this FOA is the use of AI/ML tools and methods for nuclear physics experiments, simulation, theory, and accelerator operation to expand scientific reach and accelerate scientific discovery. Major areas of research include:

- Efficiently extract critical and strategic information from large complex data sets
- Address the challenges of autonomous control and experimentation
- Efficiency of operation of accelerators and scientific instruments
- AI for data reduction of large experimental data

In addition to the above topics, software development is needed for enabling data-driven discovery of new physics and exploration of new avenues in optimization, efficient surrogate models, data analytics, and inverse problems for accelerator and major detector operations and controls. The development of advanced design approaches using AI and machine learning to inform instrumentation development is also of interest. Finally, the integration of data-analytics driven automated decision tree navigation capability into control systems is needed for existing NP-supported national user facilities, as well as into the design of the Electron-Ion Collider.

Estimated Funding/Number of Awards: DOE anticipates that, subject to the availability of future year appropriations, a total of $16 million in current and future fiscal year funds will be used to support awards under this FOA. Ceiling: $2,000,000 for two years / Floor: $50,000 for two years. The exact number of awards and award size will depend on the number of meritorious applications and the availability of appropriated funds.

Additional Information: **DE-FOA-0002875**

Department of Energy

Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Program, Phase I Release 2

Letter of Intent: January 3, 2023 | Full: February 21, 2023

Summary: This SBIR/STTR topics document is issued in advance of the FY 2023 DOE SBIR/STTR Phase I Release 2 Funding Opportunity Announcement scheduled to be issued on December 12, 2022. The purpose of the early release of the topics is to allow applicants an opportunity to identify technology areas of interest and to begin formulating innovative responses and partnerships. Applicants new to the DOE SBIR/STTR programs are encouraged to attend upcoming topic and Funding Opportunity Announcement webinars.

The following DOE program offices are participating in this (FOA):

- Office of Cyber Security, Energy Security, and Emergency Response (CESER)
- Office of Defense Nuclear Nonproliferation (NNSA)
- Office of Electricity (OE)
- Office of Energy Efficiency and Renewable Energy (EERE)
- Office of Environmental Management (EM)
- Office of Fusion Energy Sciences
- Office of High Energy Physics (HEP)
- Office of Nuclear Physics (NE)

Upcoming Webinars: Register for one or more of the DOE FY 2023 Phase I Release 2 SBIR/STTR Topics webinars and hear directly from the DOE Topic Managers as they briefly provide insight into their respective topics.

- **Webinar 1:** CESER, NA, OE, EM & FECM Topics 1- 9 & 22-28 Tuesday, November 15, 2022: Register by clicking **here**.

- **Webinar 2:** EERE Topics 10 - 21 Wednesday, November 16, 2022: Register by clicking **here**.

- **Webinar 3:** FES, HEP & NE Topics 29 - 41 Thursday, November 17, 2022: Register by clicking **here.**

These webinars are scheduled for 90 minutes or less and during registration you will be able to submit questions in advance as well as during each webinar. If you can't attend the live webinars, we'll be recording each one and making these available on our website under "Funding Opportunities".

A webinar to discuss the FY 2023 SBIR/STTR Phase I Release 2 Funding Opportunity Announcement and application process on Friday, December 16, 2022. Important changes to the DOE SBIR and STTR programs for the coming year will also be addressed.

Additional Information: **SBIR/STTR FY 2023**