

May 23, 2024

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## **Cipher Neutron and Energy Materials Research Group (NRGMATs) at the University of Alberta Gets Funding from the Alberta Innovates**

Toronto, ON--(May 23, 2024). Cipher Neutron Inc. ("Cipher Neutron" or "CN") is pleased to announce that Cipher Neutron and the Energy Materials Research Group (NRGMATs) at the University of Alberta, Canada, have been selected to receive funding from Alberta Innovates ("AI") through Advancing Hydrogen – Competition 2.

### **The Funding Program**

The Advancing Hydrogen — Competition 2 program is the second round of funding available under the Hydrogen Centre of Excellence, partnered with Natural Resources Canada's (NRCan's) Office of Energy Research and Development and Emissions Reduction Alberta ("ERA") through its Accelerating Hydrogen competition. The Centre was announced on April 26, 2022, receiving \$50 million in funding from the Government of Alberta as an important delivery mechanism for the policy pillars outlined in the Alberta Hydrogen Roadmap.

Cipher Neutron's project will activate the Centre's objectives of:

- Developing and deploying hydrogen-focused technologies;
- Strengthening Alberta's environmental, social, and corporate governance credentials while spurring economic growth;
- Building a sustainable and self-sufficient clean hydrogen economy in Alberta; and
- Increasing Alberta's technology strength in clean hydrogen technology deployment.

ERA, with funding from the Government of Alberta's Technology Innovation and Emissions Reduction (TIER) fund, is committing \$34.5 million for eight late-stage projects worth approximately \$162 million through its Accelerating Hydrogen Challenge. Alberta Innovates is committing \$22.5 million for 20 early-stage projects worth approximately \$118.8 million through the Hydrogen Centre of Excellence – Competition 2.

### **Project Details**

The joint project by Cipher Neutron and the University of Alberta, titled "Advancing Anion Exchange Membrane Electrolyser: 3D Porous De-alloyed Catalysts (3D-CAT) Key to High Power AEM Electrolysers," aims to enhance the efficiency and current density of AEM electrolysers, thus accelerating their development and commercialization of Cipher Neutron's AEM Electrolysers on

a large scale. 3D-CAT technology will be integrated into AEM electrolyzers for large-scale green hydrogen production.

### **Project Goals**

Cipher Neutron AEM Electrolyzers are continually undergoing state-of-the-art advancements. The project aims to achieve the following:

- Achieve highly efficient AEM electrolyzers by integrating non-PGM (Platinum Group Metals) based catalysts, ensuring sustainable green hydrogen production.
- Enhance hydrogen production with over 82% stack-level efficiency.
- Optimize AEM electrolyser design to streamline cell count, enhancing current density for improved performance and cost-effectiveness.

Dr. Shiva Mohajernia, Assistant Professor in the Department of Chemical and Materials Engineering at the University of Alberta, stated, “Cipher Neutron’s PGM-free and PFAS-free electrolyser is one of the most sustainable solutions for producing green hydrogen. This project between Cipher Neutron and the NRGMAT focuses on utilizing 3D de-alloyed porous catalysts to enhance the stability and efficiency of AEM electrolyzers. Incorporating 3D-CAT layers offers advantages in surface area, stability, and both CAPEX and OPEX cost reduction. The collaboration between Cipher Neutron and the NRGMAT at the University of Alberta aims to accelerate and revolutionize large-scale AEM electrolyser commercialization.”

Gurjant Randhawa, President & CEO of Cipher Neutron, stated, “Cipher Neutron looks forward to collaborating with the University of Alberta and Dr. Shiva Mohajernia. Our shared vision, to create the go-to destination for advanced hydrogen electrolysis is important for Canada’s international presence in the exponentially growing Hydrogen Economy. By leveraging hydrogen expertise in Alberta, Cipher Neutron looks forward to furthering its global goals of harnessing the best know-how for larger, more cost efficient and reliable hydrogen production.”

### **About Cipher Neutron Inc.**

Cipher Neutron is a rapidly growing disruptive technology company focused on AEM Electrolyzers for Green Hydrogen production and Reversible Fuel Cells for power generation and Energy Storage Solutions. Cipher Neutron is a global group of scientists, engineers, technology developers, experts in hydrogen technology, investment bankers and people that have worked in hydrogen for decades. Cipher Neutron’s innovative products, such as AEM Electrolyzers and Reversible Fuel Cells have unique advantages over other Green Hydrogen production, power generation and energy storage solutions currently available in the global market. Please see: <https://cipherneutron.com>

### **For more information, please contact:**

Gurjant Randhawa, CEO & President  
Cipher Neutron Inc.  
101 - 501 Alliance Avenue  
Toronto, Ontario M6N 2J1

+1 (647) 803-0002  
[grandhawa@cipherneutron.com](mailto:grandhawa@cipherneutron.com)

Nancy Massicotte  
Vice-President Corporate Development  
Cipher Neutron Inc.  
+1 (604) 507-3377  
[nancy@cipherneutron.com](mailto:nancy@cipherneutron.com)