Ecolectro Announces SBIR Funding to Tailor Fuel Cell Membranes to Electrolyzers for Solar Hydrogen Production

Ecolectro, Inc. announced the recent funding of a Phase I Small Business Innovation Research (SBIR) grant from the US Department of Energy Office of Science to develop membranes for solar hydrogen generators.

ITHACA, N.Y. (PRWEB) April 30, 2019 -- Ecolectro, Inc., innovator of high-durability alkaline exchange membranes (AEM) for use in electrolyzers and fuel cells, announced the recent funding of a Phase I Small Business Innovation Research (SBIR) grant from the US Department of Energy Office of Science. The agency sought applications for the development of membranes for use in systems that use sunlight to convert water and carbon dioxide to storable chemical fuels. The grant, “Ultra-Stable Phosphonium-based Alkaline Exchange Membranes for Solar Fuels Generators” proposed to tailor Ecolectro’s innovative AEMs to the requirements of solar powered hydrogen production systems. The $150,000 award will allow the Ithaca, NY company to address an essential component of viability for solar hydrogen generation AEMs – minimizing gas crossover and gas losses by designing polymers with unique structure-property relationships. These new materials will address the complex interplay of molecular weight, cation structure and content on performance, swelling and gas permeability. Ultimately, we will provide new membranes that will facilitate solar-powered fuel production with inexpensive, earth-abundant materials.

Demonstration of efficient renewable production of hydrogen will be a major advance toward the commercial adoption of hydrogen fuel cells for many applications. To that end, the Department of Energy sought new membrane materials to meet parameters specific to photoelectrochemical fuels generation including low gas permeability, diurnal variation of sunlight and operation at temperature extremes. In an expansion of Ecolectro’s existing commercial applications, new polymers for AEMs will be synthesized and characterized for their ability to specifically address gas permeability, conductivity, ion exchange capacity, mechanical and thermal properties, and chemical and photo stability.

Ecolectro Chief Scientific Officer and Principal Investigator Kristina Hugar, PhD said “Solar fuels generation is a new application for our alkaline exchange membranes. We will use this grant to identify and evaluate new polymer compositions against the technical limitations of membranes currently used in the field while also showcasing the adaptability of our membranes.”

About Ecolectro: Ecolectro develops durable and highly conductive polymer membranes for a range of applications, including electrolysis and fuel cell systems that improve performance and decrease costs dramatically. Ecolectro is a client company of the Kevin M. McGovern Family Center for Venture Development in the Life Sciences at Cornell University. Since its founding in 2015, Ecolectro has been awarded approximately $2.7M in federal, state and local grant funding to improve the properties of its materials, to validate device performance and for pilot scale manufacturing.
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