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Name	Piotr Zelenay	
Affiliation	Los Alamos National Laboratory	
Invited Plenary Lecture		
Presentation Title	Electrochemical Energy Conversion Using Non-Precious Metal Catalysts	
Abstract (Approximately 200 words)	Non-precious metal electrocatalysts represent an attractive low-cost alternative to their precious-metal counterparts, especially platinum group metal (PGM) catalysts for several reactions of fundamental importance for electrochemical energy conversion and storage. Of various proposed non-precious metal catalysts, the atomically dispersed transition metal-nitrogen-carbon (M-N-C) materials have been found to be especially promising for oxygen reduction reaction (ORR), as potential replacement for Pt-based cathode catalysts in low-temperature polymer electrolyte fuel cells (PEFCs) and, more recently, as catalysts for electrochemical reduction of carbon dioxide (CO_2RR). Possible implementation of non-precious metal catalysts has been also the primary driver for the development of low-temperature water electrolyzers (LTWEs) utilizing anion exchange membranes (MEAs). The non-precious metal catalysts for MEA-LTWEs are typically based on Ni alloys (for the anode and cathode) and perovskite oxides (for the anode). In this presentation, we will summarize recent progress in the development of non-precious metal electrocatalysts for four reactions: of fundamental importance to the three energy conversion devices mentioned above: ORR in PEFCs, CO_2RR in CO_2 electrolyzers, and oxygen and hydrogen evolution reactions in AEM-LTWEs. The focus of this presentation will be on improvements to both activity and performance durability of electrocatalysts for these reactions.	
Biographical Sketch (Approximately 200 words)	Dr. Piotr Zelenay received his Ph.D. and D.Sc. ("habilitation") degrees in Chemistry from the University of Warsaw, Warsaw, Poland. He was a faculty member in the Department of Chemistry, the University of Warsaw until 1997, when he accepted research position at Los Alamos National Laboratory (LANL). He has been associated with LANL for the past 25 years. He is currently one of ca. 15 highest-level scientists at LANL, a laboratory of more than 15,000 employees. His research focuses on electrocatalysis of oxygen reduction reaction, methanol and dimethyl ether oxidation in PEFCs, hydrogen and oxygen evolution reactions in water electrolyzers, and electrochemical reduction of CO_2 to value-added products. Dr. Zelenay has received numerous awards and recognitions, most recently IAGE Outstanding Researcher Award in 2022 for "outstanding research and advancement of knowledge in fuel cells, electrochemical energy, and green energy systems". He is fellow of Los Alamos National Laboratory, The Electrochemical Society, and International Society of Electrochemistry.	