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PRESS-RELEASE

Department of Chemistry and Chemical Biology Hosts Seminar on Electrochemical Modules for Sustainable Energy Applications

The Department of Chemistry and Chemical Biology successfully organized its second departmental seminar of 2026 on February 11 in the APC Roy Seminar Room. The seminar was delivered by Dr. Manjeet Chhetri, Assistant Professor (Ramanujan Fellow) at SRM University–AP, on the topic “*Electrochemical Modules for Sustainable Energy Applications Utilizing Small Molecules.*” Faculty members, research scholars, and students attended the session in large numbers and engaged in an insightful academic interaction.

In his talk, Dr. Chhetri highlighted the growing importance of leveraging surplus renewable electricity to power next-generation chemical synthesis, separations, and energy storage systems. Focusing on two key small molecules—hydrogen (H₂) and carbon dioxide (CO₂)—he elaborated on how molecular-level understanding of chemical transformations, transport phenomena, and reaction dynamics can enable their reversible interconversion between energy and chemical bonds, thereby creating scalable and sustainable energy modules. The presentation was structured in two parts. In the first segment, Dr. Chhetri discussed advancements in low-temperature CO₂ electroreduction, emphasizing electrocatalyst design and strategies to modulate reaction dynamics. He also outlined existing knowledge gaps and the measures necessary to advance the field. In the second segment, he addressed challenges related to proton transport in electrochemical devices, particularly Electrochemical Hydrogen Pumps (EHPs). He presented key innovations in materials design and electrochemical engineering, including ion-pair membrane technology developed at Los Alamos National Laboratory.

Dr. Chhetri’s distinguished academic journey, spanning JNCASR Bengaluru, ANU (Australia), the University of Notre Dame, Clemson University, and Los Alamos National Laboratory, enriched the discussion. The seminar concluded with an engaging question-and-answer session, fostering meaningful dialogue on sustainable electrochemical technologies and future research directions.

Rajni Singh

Dean (Corporate Communications)