



SUSTAINABLE ENVIRONMENT AND ENERGY RESEARCH LAB

LEAD PI: PFOF. V. C. SRIVASTAVA

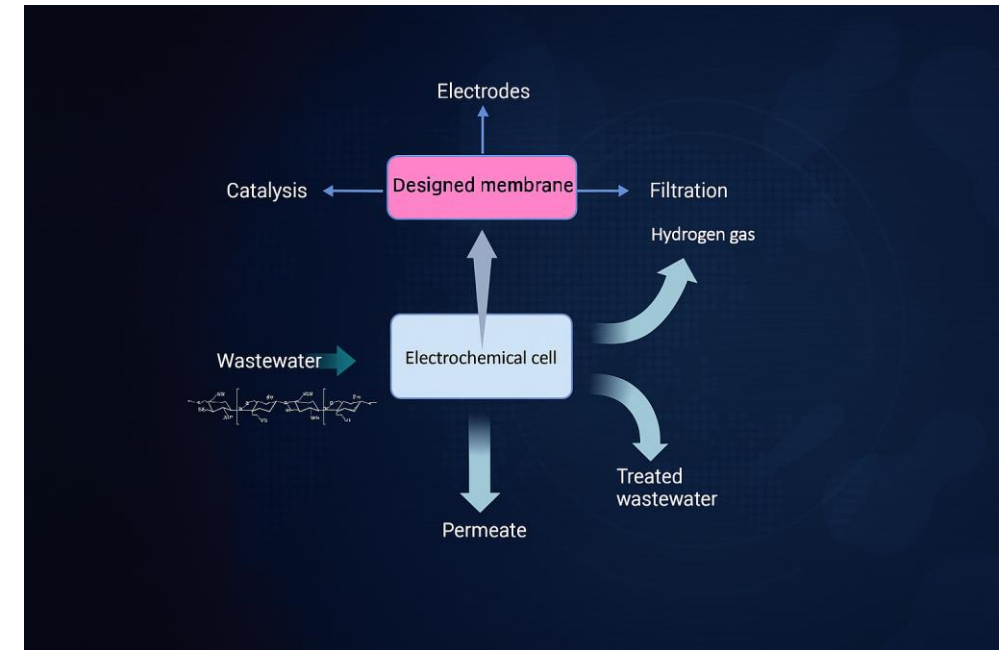
CATALYSTS for clean energy

- Our laboratory is actively engaged in advancing clean hydrogen energy technologies, with a strong emphasis on the design and development of next-generation electrocatalysts and functional materials.
- We explore strategies to design multifunctional catalysts that simultaneously deliver high activity, long-term stability, and resistance to corrosion under harsh electrochemical conditions. By tailoring surface chemistry, electronic structure, and nanostructure, our research aims to overcome the well-known challenge of integrating catalytic activity with durability in non-noble metal systems.



Multifunctional MEMBRANES

- We are accelerating towards developing advanced conducting membranes that not only serve as ionic conductors but also act as corrosion-resistant, catalytic, and multifunctional components within electrochemical cells. These innovative materials are designed to enhance overall system efficiency and longevity, while lowering costs associated with noble metals.
- These highly efficient multifunctional membranes also make the bio-wastewater electrolysis possible in an efficient way, paving the way to the scope of wastewater treatment and green hydrogen production simultaneously.
- We are also working on to modify these membranes, which can perform efficiently in the seawater electrolysis, which could make a giant leap in the field of electrolysis



Through this work, our lab contributes to the global effort of realizing hydrogen as a clean, scalable, and affordable energy carrier. By bridging material design with electrochemical performance, we aim to accelerate the transition towards a sustainable hydrogen-based energy future.