



# *Journal of Electrochemical Interfaces and Surfaces:* Towards Advanced Electrochemical Process Studies

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Electrochemistry plays a vital role in the sustainable development plans over the world due to its direct relation into many research and production directions such as energy, environment, and industry.

In the last decades electrochemical process have been involved in development of many related solution for sustainable future for our planet: here are some examples on the development that electrochemistry contribute to. In energy sector where the production of energy conversion and storage systems such as battery, supercapacitors, fuel cells, electrolyzer is highly desired to serve in many industrial applications [1]. Such systems help also balance supply and demand in renewable energy surplus energy generated from solar and wind power for later use, thereby reducing reliance on fossil fuels.

In field of sustainable chemical production, electrochemistry contributes effectively to widespread this technology worldwide. Today, electrochemistry is used in producing chemicals through electrochemical processes that can reduce the need for hazardous reagents and minimize waste [2]. Electrochemistry is also used in sustainable processes for extracting and

recycling metals, reducing the environmental impact of mining and waste [3].

In decarbonization technologies, electrochemistry plays an important role to reduce the emission of harmful gases into the environment and the extensive using of fossil fuels. Electrochemical conversion of CO<sub>2</sub> into value-added chemicals as well as production of ammonia by electrochemical process are few examples of the electrochemical process where electrochemistry is involved in for building a future circular economy [4, 5].

In environmental, healthcare, agriculture applications, electrochemistry contribute to different process ranging from monitoring and evaluation the environmental hazards into pollutions treatment; specifically, water treatment and extended to the energy production by the bioelectrochemical systems. Furthermore, corrosion monitoring and corrosion protection are important industrial applications that are related to many sectors in industry where electrochemistry helps to provide a solutions for these sectors in related to corrosion science. Moreover, Electroplating is an electrochemical process that used on wide rang in electronic industry [6].

In all the above electrochemical process, the electrochemical reactions take place at interfaces



Submitted: 15 December 2024

Accepted: 06 May 2025

Published: 21 May 2025

Vol. 1, No. 1, 2025.

10.62762/JEIS.2024.985013

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## Citation

Nassr, A. B. A. A. (2025). *Journal of Electrochemical Interfaces and Surfaces: Towards Advanced Electrochemical Process Studies*. *Journal of Electrochemical Interfaces and Surfaces*, 1(1), 1-3.



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between the electrode materials and the electrolyte where different interfaces process such as ion transfer, electron transfer, and adsorption/desorption of reactants and products on the electrode surface, structural and phase change of the electrode surface can contribute to control all the entire process. Understanding the electrochemical process that take place at the interfaces between the electrolyte and electrode is an important topics of electrochemical surface science to optimize the electrochemical technologies and developing the related technologies [7].

In today world, with advancement of electrochemical surface science and developing many in situ structural characterization combined with electrochemical methods (in-situ and operando methods) help to understanding the electrochemical process and the behavior at the electrode surfaces and therefore developing more efficient electrochemical systems [8–11].

In our journal (*Journal of Electrochemical Interfaces and Surfaces*), we are concerned to cover all topic related to the electrochemical process and phenomena taking place at the electrode electrolyte interface with helping of electroanalytical tools, experimental electrochemistry, surface structural characterization as well as theoretical approaches.

The journal seeks to serve as an international platform for the publication of high-quality, innovative original research, encompassing comprehensive studies and research advancements, peer-reviewed articles, review papers, perspectives, communications, comments, and brief notes. It aims to reflect the extensive and interdisciplinary scope of electrochemical surfaces and interfaces, addressing all electrochemical processes and their applications across diverse fields, including energy conversion and storage, environmental concerns, engineering aspects of electrochemical systems and corrosion science, bioenergy, and healthcare.

We anticipate that the *Journal of Electrochemical Interfaces and Surfaces* will assist the electrochemistry community in their research endeavors on the electrochemical surface and interfaces science. We also hope that it will serve as a communication platform and a valuable repository of resources for researchers across all pertinent disciplines. We are looking forward for the forthcoming advancements in electrochemical surfaces and interfaces in the coming years through the collaborative efforts of our colleagues.

As we embark on this journey, we extend an open invitation to our readers and contributors. Your insights, critiques, and ideas are invaluable to shaping the direction of this journal. Together, we can create a space where knowledge is not only shared but also co-created, where challenges are not only identified but also addressed.

On behalf of the entire editorial board, I thank you for joining us on this exciting new venture. We look forward to growing with you and to the many conversations, collaborations, and discoveries that lie ahead. Welcome to *Journal of Electrochemical Interfaces and Surfaces*.

### Data Availability Statement

Not applicable.

### Funding

This work was supported without any funding.

### Conflicts of Interest

The author declare no conflicts of interest.

### Ethical Approval and Consent to Participate

Not applicable.

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