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Editorial

Recognizing the rapid pace at which electrochemical science continues to evolve, we are delighted to introduce a new regular section in the journal entitled **Featured Articles**, beginning with this issue. This section is intended to provide concise, authoritative, and accessible perspectives on emerging concepts, breakthrough technologies, and rapidly advancing research areas that are expected to shape the future of electrochemistry, materials science, and energy technologies. By presenting timely overviews from experts in the field, we hope to facilitate knowledge dissemination across disciplines and stimulate new ideas for both established researchers and young investigators. The inaugural Featured Article 1 portrays the application of electrochemistry for coffee quality measurement. The featured article 2 focuses on Water-in-Salt Electrolytes (WiSE), a class of highly concentrated aqueous electrolytes that has attracted considerable attention for overcoming the electrochemical stability limitations of conventional aqueous systems.

The continuing evolution of electrochemical science and engineering is redefining the boundaries of materials innovation, energy conversion, corrosion protection, and advanced manufacturing. As the global pursuit of sustainable technologies accelerates, the integration of fundamental understanding with engineering solutions has become increasingly essential. The contributions in this issue reflect this convergence, illustrating how advances in electrochemistry, surface engineering, functional coatings, and materials characterization are collectively shaping technologies that address pressing societal and industrial challenges. Surface modification and protective coatings remain indispensable for enhancing the reliability and longevity of engineering systems operating in demanding environments. Innovations in electrodeposited composite coatings, next-generation Zn–Al–Mg alloy coatings, and the characterization of engineered interfaces presented in this issue exemplify the continuing emphasis on designing multifunctional surfaces with superior corrosion resistance, mechanical integrity, and long-term durability. These studies demonstrate that advances in coating technology are increasingly driven not only by composition and processing but also by a deeper understanding of interfacial chemistry and microstructural evolution.

At the same time, the global transition toward low-carbon energy systems continues to stimulate remarkable developments in electrochemical materials. Contributions addressing perovskite photovoltaics and advanced electrocatalysts for the hydrogen evolution reaction highlight the central role of materials design in improving energy conversion efficiency and enabling sustainable hydrogen production. Whether through optimizing fabrication routes, understanding degradation mechanisms, or engineering defects at the nanoscale, these investigations reinforce the importance of linking fundamental materials science with practical energy applications.

Equally noteworthy is the rapid transformation of electrochemical experimentation itself. Modern electrochemical research is no longer defined solely by sophisticated instrumentation but increasingly by the intelligent acquisition, interpretation, and utilization of data. The review on the evolution of electrochemical instrumentation—from conventional potentiostats to artificial intelligence-assisted platforms—captures a paradigm shift that is influencing every aspect of electrochemical research. Artificial intelligence, machine learning, and automated experimentation are beginning to accelerate materials discovery, optimize experimental design, and reveal complex relationships that were previously difficult to discern. These developments are expected to fundamentally reshape the practice of electrochemical science in the coming years.

Collectively, the articles in this issue underscore an important reality: advances in electrochemical science increasingly emerge at the intersection of multiple disciplines. Surface engineering now relies on sophisticated analytical techniques and computational tools; energy materials demand simultaneous optimization of chemistry, microstructure, and functionality; and digital technologies are transforming both experimentation and interpretation. Such convergence not only broadens the scope of electrochemical research but also accelerates the translation of laboratory discoveries into industrial technologies.

As our journal continues to evolve, we remain committed to publishing rigorous, impactful, and interdisciplinary research that advances both the science and application of electrochemical and surface engineering technologies. We are grateful to our authors for entrusting us with their work, to our reviewers for their careful and constructive evaluations, and to our Editorial Board for their unwavering commitment to maintaining the highest standards of scientific excellence. Most importantly, we thank our readers for their continued support and engagement. We hope that the contributions presented in this issue will stimulate new ideas, encourage interdisciplinary collaborations, and inspire future innovations that will contribute to a more sustainable and technologically advanced society.

We envisage that the **Featured Articles** section will become a regular forum for introducing transformative concepts and emerging technologies that bridge fundamental electrochemical science with practical applications. We invite experts from academia, national laboratories, and industry to contribute concise perspective based on the recent publications in reputed journals, that will enrich the journal and serve as a valuable resource for the broader electrochemical community.

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Chief Editor