Editorial

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The beginning of 2010 marks the launch of *Electrocatalysis*, a new Springer journal. Electrochemical science and engineering have always been an important part of Springer's publications, and this new journal is a natural extension of them. *Electrocatalysis* is the only international journal solely dedicated to fundamental and applied aspects of chemical reactions taking place at the electrode and driven through the application of an electrical field. Because electrochemistry and electrocatalysis are cross-disciplinary in nature and attract the interest of chemists, physicists, biochemists, surface and materials scientists, and engineers, *Electrocatalysis* will fill existing gaps and build bridges between various areas of science and engineering. *Electrocatalysis* covers all topics of electrochemical reactions from molecular-level phenomena occurring at well-defined electrode surfaces to electrochemical processes taking place in industrial-scale electrochemical installations. The main objective of *Electrocatalysis* is to provide a leading international forum for the exchange of scientific ideas for academic, government, and industrial researchers active in the field of electrocatalysis and electrocatalytic materials. Quick publication of results, scientific data, and inventions in *Electrocatalysis* will stimulate scientific discoveries and breakthroughs, promote the exchange of novel concepts, and create a medium for the publication of scientific and engineering concepts that are critical to the development of novel electrochemical technologies and devices.

In a majority of electrochemical systems, electrochemical reactions take place at the solid electrode surface. The electrode possesses numerous characteristics such as chemical composition (one element vs. several elements), electronic properties, three-dimensional structure (bulk-type vs. porous material), two-dimensional surface structure (well-ordered monocrystalline surface vs. flat polycrystalline surface vs. roughened surface), and others. These unique features affect the mechanism, kinetics, and thermodynamics of electrode processes. Because mechanistic, kinetic, and thermodynamic aspects of electrochemical processes are linked to the above-mentioned characteristics, *Electrocatalysis* is also dedicated to innovative research on electrode materials. For instance, the application of metallic nanoparticles in fuel cells has triggered an interest in novel methods of synthesizing nanoparticles of well-tailored size, shape, and composition. Growing environmental concerns that include the ever-increasing CO₂ gas level in the atmosphere and the associated climate changes, our dependence on diminishing nonrenewable energy resources, and the rising cost of fossil fuels stimulate interest in alternative energy scenarios including the hydrogen economy. The hydrogen economy is one of the energy scenarios of the twenty-first century. It involves hydrogen generation via water electrolysis (among other methods) and its subsequent utilization in fuel cells to generate electrical and thermal energy. Advances in this area and the eventual implementation of the hydrogen economy strongly rely on research and development efforts in electrocatalysis. *Electrocatalysis* will assist these efforts by offering a high-profile publication medium and a forum for the exchange of ideas.

Electrocatalysis publishes original submissions in the form of letters, research papers, review articles, educational papers, and book reviews. Letters are preliminary reports

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that communicate new and important findings; they are followed by full-length papers. Regular research papers are complete reports of new results and their analysis and discussion. Review articles critically and constructively examine development in various areas of electrocatalysis that are of broad interest and importance. Educational papers discuss important concepts whose understanding is vital to advances in theoretical and experimental aspects of electrochemical reactions; they will also stimulate education in electrochemical sciences.

Electrocatalysis invites submissions in subject areas including but not limited to:

- theoretical and experimental aspects of the mechanisms and kinetics of electrochemical reactions
- electrochemical generation of gases
- electrochemical reactions taking place in fuel cells
- electrosynthesis, organic electrochemistry, and electrocatalytic hydrogenation

- electrochemical reactions taking place at matrix-supported electrocatalysts
- electrode reactions occurring in electrochemical sensors
- electrochemical degradation of pollutants

All submissions are carefully examined by the Editor-in-Chief and Associate Editors prior to being sent for assessment by Referees who are specialists in their respective areas. The rigorous review of submissions ensures that the journal maintains the highest levels of originality, integrity, and international readership. On behalf of Springer and the Editorial Board, we invite every person active in the area of electrocatalysis to embrace the new journal and to contribute toward its growth by submitting papers and reading new issues.

Gregory Jerkiewicz
Editor-in-Chief

Kenneth Howell
Publishing Editor