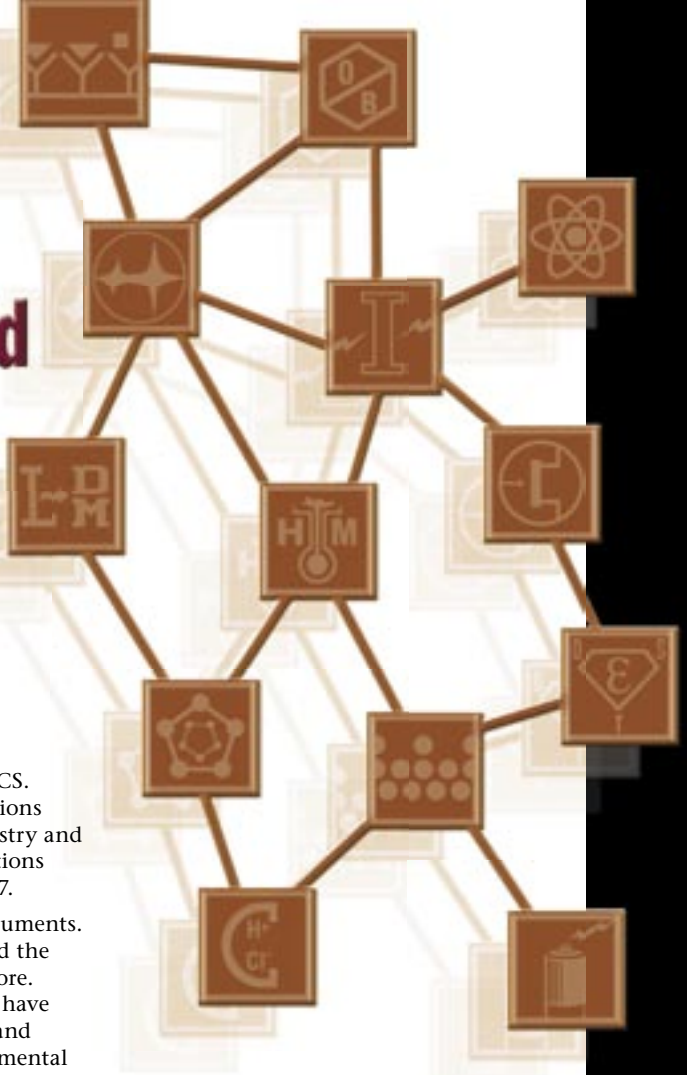

# What Is Electrochemical and Solid-State Science?

*by Krishnan Rajeshwar*

In 1902, about 30 scientists and engineers founded an organization which we know today as The Electrochemical Society or ECS. The early days of the Society have been well documented in a book and a special issue of this magazine that commemorated the Society's Centennial in 2002.[1,2] In light of the Society's rapid growth and the expansion of its reach beyond the original nine countries of its founders, members of the *Interface* Advisory Board felt that the time was perhaps ripe to highlight the technical activities of the various Divisions that form the core of ECS. Precedence for this already existed in the form of two ECS publications that were entitled: "What Is Electrochemistry?" and "Electrochemistry and Solid-State Science in The Electrochemical Society"—these publications went through four editions, the last of which was published in 1997.

Almost ten years have elapsed since the publication of these documents. The synergy within the Society between the solid-state sciences and the most traditional areas of electrochemistry is stronger than ever before. Academia, national laboratories, and industrial R&D organizations have joined forces under one umbrella organization in which scientists and engineers share important information on advances in both fundamental and technological fronts. ECS was founded on the traditional areas of electrochemistry including corrosion, batteries, electrodeposition, electrolysis, and electrochemical engineering. Simultaneously, it began its evolution to meet the needs and challenges of researchers involved in solid-state disciplines mainly related to microelectronic devices such as the transistor. The Society has since forged a leadership position in the science and technology of materials such as dielectrics, ceramics, phosphors, fullerenes, and carbon nanotubes. Many ECS members are now playing important roles in bringing new generations of sensors, fuel cells, and solar cells closer to practical reality. The increasing realization that many of the important industrial and biological processes have an electrochemical component is driving the members of the Organic and Biological Electrochemistry Division. Throughout its approximately 100 year history, ECS has adapted to the rapidly shifting science and technology landscape as manifested in the name changes of several Divisions: Physical Electrochemistry to Physical and Analytical Electrochemistry and Electronics to Electronics and Photonics, to mention two recent examples. This trend will undoubtedly continue in the future.

An added incentive to highlight, in a special issue of this magazine on the technical missions of the various Divisions within ECS, has to do with the notion that the lifeline of any new organization lies with its youngest members. The Student Members of the Society today will form the leadership core of the future and thus it behooves us to find new ways to attract science and engineering students into ECS; we hope that this special issue will fulfill this important recruitment mission. The "story" of ECS must also be shared with other constituencies, namely, educators, industry executives, and government policymakers at all levels.

So here are thirteen stories, some with boxed (sidebar) features, and all showing how the ECS Divisions have had the leadership and vision to provide a home and a forum for cutting edge advances in the solid-state and electrochemical sciences. It is my hope that you, the readership, will derive as much inspiration and enjoyment as I have had in bringing these stories to you.


## Acknowledgments

Comments from Roque Calvo, Dennis Hess, Paul Kohl, Daniel Scherson, and Mary Yess are gratefully acknowledged.


## References


1. F. A. Trumbore and D. R. Turner, *The Electrochemical Society, 1902-2002: A Centennial History*, The Electrochemical Society, Pennington, NJ (2002).
2. The Electrochemical Society: A Forum for Electrochemistry and Solid-State Science for 100 Years," *Interface*, 11(1), 22 (2002).


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