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This issue of the *Journal of Solid State Electrochemistry* focuses on the effects of application of magnetic field on electrochemical reactions. For many chemists (and some physicists, too), magnetism presents a mystery, and they can hardly imagine how a magnetic field should affect the rate of an (electro)chemical reaction. To be honest, some bit of harm has been done to this field by falsified experimental results claiming manifold increases of yields by application of weak magnetic fields. And then there is a growing industry that tries to sell magnets to improve the quality of your drinking water and to improve your health (just to mention a few). Whereas not all of this may be meaningless, but one must be aware about the order of magnitude of the effects of the magnetic field to be expected in such cases.

Every scientist is familiar with the Lorentz force. It is this force that mainly governs the field of magneto-electrochemistry and that is crucial in magnetic flow control, or magnetohydrodynamics. During the last few years, the role of the Lorentz force on the mass transport in electrochem-

ical reactions has been clearly identified. A quantification—based on analytical solutions and numerical simulations—is possible, at least for simple electrode geometries. Other forces (like the paramagnetic concentration gradient force) have been discovered and seem to be important in electrochemical reactions. Some controversial discussion goes on about their order of magnitude, though.

The present special issue is a synopsis of reviews and original papers. The editors tried to bring together leading experts from the field of magneto-electrochemistry. However, we are aware that the coverage of the field cannot be complete.

There are papers dealing with metal depositions and dissolutions in magnetic fields, as well as metal oxides, composites and conducting polymers. The aspect of magnetic flow control is addressed, and last, but not the least, some papers deal with magneto-optical effects and photo-magnetism.

We hope that the reader will find this collection of papers interesting and useful, and that the interest in magneto-electrochemistry might be stimulated.

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