

Editorial: Interface Science

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Fundamental research into the structure, chemistry, energy, and properties of interfaces has been a focal point of materials science for many years. *Interface* is a general term, which includes interfaces between similar phases (*grain boundaries*), interfaces between dissimilar phases (*phase boundaries*), specific planar defects (e.g., *stacking faults*), and free surfaces or the interface between a material and the surrounding atmosphere. Intensive work by a vast number of different research groups has probed the structure of interfaces [1–14], interface energy and segregation [15–27], wetting [28–39], atomistic theory of interfaces [40–52], interface kinetics [53–68], and interface mechanical and functional properties [69–86]. In parallel, applied research has addressed these fundamental issues during the development of joins, composites, crystal growth, microstructure control, mechanical and functional property optimization, and the prevention of corrosion.

To disseminate knowledge on interfaces, the journal *Interface Science* was first published by Kluwer in March, 1993, with David J. Srolovitz and Manfred Rühle as editors. In 2002 David N. Seidman took over as editor of the journal, until October of 2004, when *Interface Science* was merged into the *Journal of Materials Science*. In June 2006 I joined the *Journal of Materials Science* as an editor, with the goal of promoting special issues of the *Journal of Materials Science* in the field of *Interface Science*, such that the many scientists working in the field would have a concentrated venue for publishing their works.

In agreement with the Editor in Chief of the *Journal of Materials Science*, Barry Carter, we intend to publish

several issues of *Interface Science* each year, providing authors with a timely platform for publishing *full papers* or *reviews* of certain aspects of the subject. These issues will include manuscripts submitted by authors, who selected the *Interface Science* pull-down menu during submission of their manuscripts to the Journal of Materials Science (www.editorialmanager.com/jmsc/), as well as focused issues organized by guest editors, either stemming from conferences or organized in order to present a focused view on the current state of research in *Interface Science*. For example, after a full review process, manuscripts submitted to the international conference on Intergranular and Interphase Boundaries (iib2007), which was held in Barcelona in July 2007, will be published as a special issue of *Interface Science* toward the beginning of 2008. In addition, several guest editors have already agreed to organize focused issues on interface related topics, and active scientists in the field who are interested in serving as guest editors for focused issues are encouraged to contact W.D. Kaplan.

As in the past, *Interface Science* concentrates on the structure and properties of internal interfaces in materials. The inherently interdisciplinary nature of interfacial phenomena extends through materials science, physics, chemistry, biology, and mechanics, spanning a broad range of material systems. A focus on interfacial phenomena makes the *Interface Science* issues unique. The issues on *Interface Science* include publications on:

- Electronic and magnetic properties of interfaces.
- Effects of interfaces on bulk electronic and magnetic phenomena.
- Interfacial segregation and interfacial phases.
- Solid–liquid interfaces, wetting, and spreading.
- Transport along/through interfaces.
- Chemical effects at interfaces.

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- Mechanical properties at interfaces.
- Effects of interfaces on bulk mechanical properties.
- Thermodynamic properties of interfaces.
- Interface migration, including twinning, grain growth, phase transformations, etc.
- Electronic properties and bonding at interfaces.
- Atomistic structure & chemistry of interfaces.
- Advanced characterization techniques for interface science.

I would like to encourage authors to submit manuscripts to the *Interface Science* issues. We have an excellent group of Editorial Board Members who will be involved in organizing rapid and detailed reviews, including *Dominique Chatain*, *Craig Carter*, *Doug Medlin*, *Bob Pond*, *Valerie Randle*, *Eugene Rabkin* and *Rob Ritchie*.

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