
Editorial

Science and technology related to designing and modification of the surface of a component for cost-effective performance enhancement can be defined as surface engineering. As more complex forms and materials are being explored, processing them into useful components is becoming increasingly difficult and prohibitively expensive. Furthermore, in the fiercely competitive global economy these components are expected to have extended lives with effective performance beyond their existing limits. In light of this, better engineering in the form of surface treatment of inexpensive materials to provide accurate, repeatable, and consistent properties offers tremendous promise. In addition, surface engineering has a niche in extending the lifetime of existing components through service and repair. In recognition of the important role that surface engineering is poised to play in future technological developments, ASM International has recently organized two International Surface Engineering Congresses, and this issue of *Journal of Materials Engineering and Performance* (JMEP) is dedicated to this subject.



The papers in this special issue of JMEP are based on oral presentations made during the 2nd Annual International Surface Engineering Congress (ISEC) & Exposition held September 15-17, 2003 at the Indiana Convention Center in Indianapolis. As the Surface Engineering Congress covered a large number of technical sessions (13) and presentations (more than 75) on a wide range of topics such as tribological coatings, coatings for corrosion protection, plasma-enhanced processes, PVD/CVD, electroplating/electrodeposition, laser processes, thermal spray coatings, coatings in biomedical applications, residual stress, and characterization of coatings, it was decided that a special issue of JMEP would be an appropriate outlet for a selected number of papers. Although the majority of presentations were included in the proceedings (*Heat Treating and Surface Engineering*, Editors: N.B. Dahotre, R.J. Gaster, R.A. Hill, and O.O. Popoola, ASM International, 2003), the selected papers are detailed versions of the proceedings papers and have been further formulated and revised according to JMEP requirements. These papers have been selected to represent the cross section of various aspects of surface engineering and are expected to generate renewed interest in traditional manufacturing industry. We are thankful to all the authors who have gone through the effort of reformatting/revising the proceedings papers for JMEP while recognizing the importance of promotion of surface engineering within the traditional engineering community.

I thank ASM International for providing me an opportunity to be a part of several initiatives in the area of surface engineering, and I especially thank Dr. Jeff Hawk, Editor, and the staff of JMEP for putting together this special issue.

Guest Editor

Narendra B. Dahotre, Ph.D.

UT-ORNL Professor of Materials Science & Engineering
326 Dougherty Engineering Building
Department of Materials Science & Engineering
The University of Tennessee
Knoxville, TN 37996