

Surface Modification Technologies

**Proceedings of the
20th International Conference on Surface Modification Technologies**

**September 25–29, 2006
Vienna, Austria**

Edited by
**T.S. Sudarshan
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Sponsored by



**International
Surface Engineering
Congress and
Exposition**

Published by
ASM International®
Materials Park, Ohio 44073-0002
www.asminternational.org

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First printing, July 2007

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ISBN-13: 978-0-87170-856-4
ISBN-10: 0-87170-856-6
SAN: 204-7586

ASM International®
Materials Park, OH 44073-0002
www.asminternational.org

Printed in the United States of America

Cover photos: "Micro Abrasive Wear Evaluation on WC Coatings with different Binders Applied by HVOF Process."
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Foreword

The 20th International Conference on Surface Modification Technologies was held between September 25–29, 2006 at the Congress Center in Vienna, Austria in conjunction with the 15th IFHTSE meeting sponsored by ASMET. Several hundred people attended the joint sessions of IFHTSE/SMT and delegates from over 30 countries presented papers in the various parallel sessions. All the papers presented in this proceedings were peer reviewed and corrected prior to publication. The meeting was cosponsored by IOM UK and the proceedings is published by ASM International.

Each paper in this proceedings reflects significant work by the authors, some of whom ensured that the practical applications of surface engineering were emphasized. The dedication of the authors and the session chairs in completing their individual sessions on time must be commended along with the excellent interactions at the end of each paper presented. We would like to thank the numerous anonymous reviewers for their generous donation of time and for their patience and assistance to take on this activity at short notice.

We would also like to acknowledge the support of all of the ASMET staff for their excellent organization of the traditional Viennese Heurigger and the conference dinner hosted by the Mayor of Vienna. The SMT organizers would also like to thank Dr Heimo Jager for his patience and ability to do things in a very professional manner. The efforts of Nicolle Mueller and Yvonne Krenn in handling all the numerous enquiries related to the planning and execution of this meeting is appreciated and a special thanks goes to Bob Wood for enabling this meeting of the SMT with IFHTSE.

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Publication title	Product code
Surface Modification Technologies: Proceedings of the 20 th International Conference	05216G

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Surface Modification Technology. By conferring various functions to film surfaces and creating surface attributes to suit a particular application it is possible to create products with a wide range of characteristics. A number of these are introduced below. Technology for Conferring Conductivity. Technology for creating a conductive nano-order thin film on the surface of a film in a vacuum is used in applications such as flexible printed circuit boards and transparent conductive films for touch panels. Surface Modifications Systems Inc., has leveraged its extensive materials and surface engineering know how into providing a wide complement of solutions addressing problems in materials selection, wear, corrosion, high temperature phenomena, biocompatibility and other forms of surface functionality. Knowledge without practicality is not engineering. Surface Modification Systems Inc. complements its material solutions with a wide variety of thermal spray 2. Surface Modification Technologies. 2.1 Foot support rolls of continuous casting machine Small-diameter and split rolls used in the upper section of a continuous casting machine undergo high thermal load and suffer from severe damage such as abrasion, thermal crack, and corrosion under a high-temperature environment. Along with the technological innovation of iron- and steel-making technologies, characteristics demanded by iron- and steel-making equipment including rolls are changing incessantly. Surface modification is the act of modifying the surface of a material by bringing physical, chemical or biological characteristics different from the ones originally found on the surface of a material. This modification is usually made to solid materials, but it is possible to find examples of the modification to the surface of specific liquids. The modification can be done by different methods with a view to altering a wide range of characteristics of the surface, such as: roughness, hydrophilicity