

# Reviews on Advanced Materials Science

Volume 9, Number 1, April 2005

**Topical Issue on Mechanical Properties of  
Nanostructured Materials and Nanocomposites**

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## CONTENTS

<b>Preface .....</b>	<b>A4</b>
<b>Mechanical Properties of Nanostructured Materials .....</b>	<b>1</b>
Bing Q. Han, Enrique J. Lavernia and Farghalli A. Mohamed	
<b>Elastic Fields of Inclusions in Nanocomposite Solids .....</b>	<b>17</b>
I.A. Ovid'ko and A.G. Sheinerman	
<b>Modeling Techniques for Determination of Mechanical Properties of Polymer Nanocomposites .....</b>	<b>34</b>
P.K. Valavala and G.M. Odegard	
<b>Fundamentals of Interface Phenomena in Advanced Bulk Nanoscale Materials .....</b>	<b>45</b>
B. Baretzky, M. D. Baró, G. P. Grabovetskaya, J. Gubicza, M. B. Ivanov, Yu.R. Kolobov, T.G. Langdon, J. Lendvai, A. G. Lipnitskii, A.A. Mazilkin, A.A. Nazarov, J. Nogués, I.A. Ovidko, S. G. Protasova, G. I. Raab, A. Révész, N.V. Skiba, J. Sort, M. J. Starink, B.B. Straumal, S. Suriñach, T. Ungár and A.P. Zhilyaev	
<b>Subscription order form 2005 .....</b>	<b>A5</b>
<b>Copyright transfer agreement form .....</b>	<b>A6</b>

## PREFACE

In recent years, nanostructured materials and nanocomposites have become increasingly important because of their remarkable properties and permanently growing areas for practical applications. In spite of the rapid progress in this field, mechanical properties of nanostructured materials and nanocomposites are still remaining *terra incognita* in materials science and solid state physics. Pioneer works on nanocrystals have pointed out to the importance of size effects in the formation of nanomaterial mechanical properties. Recently original physical mechanisms (different from those operating in bulk materials) responsible for material mechanical behavior were predicted for nanostructured materials and nanocomposites. This topical issue of Reviews on Advanced Materials Science provides an updated picture of the most important aspects dealing with mechanical properties of nanostructured materials and nanocomposites. Four topical reviews consider various aspects of mechanical properties of nanomaterials including analytical and computational modeling in combination with comprehensive experimental analysis of mechanical behavior of powder-based, electrodeposited and bulk nanomaterials. Let us hope that the efforts of the authors of the present topical issue will be useful for readers and will help them in further understanding of mechanical behavior of nanomaterials.

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