

Reviews on Advanced Materials Science

Volume 25, Number 3, September 2010

**Proceedings of the 2nd International Symposium
"Bulk Nanostructured Materials: from
Fundamentals to Innovations.
BNM-2009"**

**Guest Editors: R.Z. Valiev,
Institute of Physics of Advanced Materials,
Ufa State Aviation Technical University,
Ufa, Russia**

**I.V. Alexandrov,
Institute of Physics of Advanced Materials,
Ufa State Aviation Technical University,
Ufa, Russia**

**G. Wilde,
Institute of Materials Physics,
University of Muenster, Muenster, Germany**

**K. Xia,
University of Melbourne, Australia**

**T.G. Langdon
University of Southern California,
Los Angeles, USA
University of Southampton, Southampton, UK**

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PREFACE

On September 22-26, 2009, 275 leading experts in the sphere of deformation nanotechnologies from 26 countries of the world (Russia, Germany, USA, Japan, China, Austria, Turkey, Brazil, Poland, Czech Republic, Iran, UK, Ukraine, India, Hungary, Slovakia, Italy, Spain, France, Switzerland, Australia, Belgium, Norway, Canada, Taiwan, and Portugal) met in Ufa at the Congress on Nanotechnologies. It comprised the 2nd international symposium "Bulk nanostructured materials: from fundamentals to innovations. BNM-2009", the international conference for young scientists with the elements of scientific school "Nanomaterials and Nanotechnologies in Metallurgy and Materials Science", a set of round tables and the first specialized exhibition of high technologies. This BNM-2009 symposium followed from on an earlier successful symposium (BNM-2007) hold in Ufa on 14-18 August 2007. As previously, the symposium was concerned with the problems of fundamental and applied research associated with bulk nanomaterials processing. The unique peculiarity of this event was participation of representatives from almost all laboratories in the world working in this theme.

The symposium demonstrated that research in the field of bulk nanomaterials, which started twenty years ago in Ufa, has now achieved wide international recognition and development. A broad geography of the conducted work, dynamics of the investigation growth, the high ratings of scientific publications proved that the given subject is one of the most important trends of modern nanomaterials science and nanotechnologies.

Recent discoveries of unique properties of bulk nanomaterials, novel deformation mechanisms and phase transformations are the basis for further development and application of bulk nanomaterials as functional and structural materials of a new generation. The idea to pass from laboratory testing of bulk nanomaterials to their commercial application, shown during the symposium in 2007, was successfully proven at the Innovative session in 2009.

Successful innovative elaborations for application of nanostructured Ti in medicine and machinery, use of nanomaterials in sport and everyday life and many other things were shown during the symposium. The present issue of the journal opens the series of 3 issues which contain 39 papers in total presented by participants of the symposium. The papers cover a broad number of topics (Introduction to Bulk Nanostructured Materials, Processing, Microstructure, Properties, Application) and comprehensively reflect the modern status of investigations in this field.