2011 Research Bulletin of the Australian Institute of High Energetic Materials, Volume 1

Contains Selected Manuscript Submitted to the 2010 International Conference on High Energetic Materials and Dynamics of Ultrafast Reactive Systems, the 2010 Scientific Symposium on Socio-Economic Impact of Natural Climate Change and the Perpetual Engineering V-Conference of the Australian Institute of High Energetic Materials

Held at Various Locations in 2011

Editors:

V. Stamatov

A. Jagadeesh

A. Lukin

ISBN: 978-1-61839-459-0

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Additional copies of this publication are available from:

Curran Associates, Inc.
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

The 2011 Research Bulletin of the Australian Institute of High Energetic Materials Volume 1 was produced and published by:

Australian Institute of High Energetic Materials

ABN: 68 126 426 917

E-mail: contact@ausihem.org Web: http://www.ausihem.org

First Published November, 2011

ISBN: 978-1-61839-459-0 (Print Edition)

ISBN: 978-0-9806811-9-2 (Electronic Edition)

181 pages

© The Australian Institute of High Energetic Materials is the proprietor of the copyrights on the content of the Research Bulletin of the Australian Institute of High Energetic Materials, unless it is otherwise indicated throughout the materials presented. The current issue of the Research Bulletin of the Australian Institute of High Energetic Materials contains selection of manuscript submitted to the 2010 International Conference on High Energetic Materials and Dynamics of Ultrafast Reactive Systems, the 2010 Scientific Symposium on Socio-Economic Impact of Natural Climate Change and the Perpetual Engineering V-Conference of the Australian Institute of High Energetic Materials.

NOT FOR RESALE. All materials published in the Research Bulletins of the Australian Institute of High Energetic Materials are protected by copyright. Owners of legally obtained copies of the Research Bulletins of the Australian Institute of High Energetic Materials are permitted to use these materials for personal study and research only, as permitted under the Copyright Act. Use of these materials for any other purposes, including copying or resale may infringe copyright unless written permission has been obtained from the copyright owner. Enquiries should be made to the publisher.

 $Copyright \ {\color{blue}\mathbb{O}}\ Australian\ Institute\ of\ High\ Energetic\ Materials-All\ rights\ reserved$



United through knowledge

2011 Research Bulletin of the Australian Institute of High Energetic Materials

Content of Volume 1 Page: Title: Author(s): 10 Prediction of container hermeticity for isostatic Bar-Kohany, T., Stern, A. pressuring processes 28 The evaluation of the neutron radiation absorption Kipcak A.S., Baysoy D.Y., capacities of inderite minerals Moroydor Derun E., Piskin S. 38 Characterization of the kurnacovite mineral and its Kipcak A.S., Baysoy D.Y., absorption behavior due to neutron radiation Moroydor Derun E., Piskin S. 47 Hydrothermal synthesis of magnesium borate Kipcak A.S., Senberber F.T., hydrates from MgO and H₃BO₃ at 80°C Moroydor Derun E., Piskin S. Impeller with cavity vane wind turbine Qasim A.Y., Usubamatov R., Zain 56 Optimization of the processing mode of machine Alwaise A.M., Usubamatov R., Zain tools by using the criterion of maximum productivity Z.M. rate 75 Wong K.V. Solar cookers 85 A general kinetic modeling methodology for first Bhusare V.H., Periyasamy B. order irreversible reaction systems 106 Layered silicates in fibre-reinforced composites Sharma B., Chibber R., Mehta R. 119 Critical study of wind energy generation in India Sajid M.Z.I., Reddy K.H.C., Nagesh with windmill performance characteristics E.L. **DISCUSSION PAPERS:** 127 System identification for experimental study for wax Ibrehem A.S., Kelechukw E.M., Aldeposition problems Salim H.S. 135 Mathematical model for characterization of short Ibrehem A.S., Al-Salim H.S. carbon fiber reinforced polypropylene composite 139 Application of nonlinear reduction techniques in Ibrehem A.S., Al-Salim H.S. chemical process modeling 146 Advanced controller system to describe production Ibrehem A.S. process of bio-diesel SELECTED 2010 CONFERENCE PAPERS 155 Climate change: an integrated approach to the Bergagna D.A. problem 166 Explosive compositions with lithium composite Xie X., Yan X. oxide powders 172 Explosive compositions with lithium oxide powders Xie X.H., Yan X.R., Zhou H.S. 177 Temperature of explosion for lithium battery Zhou H.S., Xie X.H., Yan X.R. materials