Functional Metal Oxide Nanostructures

https://doi.org/10.1557/opl.2012.996 Published online by Cambridge University Press

MATERIALS RESEARCH SOCIETY
SYMPOSIUM PROCEEDINGS VOLUME 1406

Functional Metal Oxide Nanostructures

Symposium held November 28–December 2, 2011, Boston, Massachusetts, U.S.A.

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MRS
Materials Research Society
Warrendale, Pennsylvania

CAMBRIDGE UNIVERSITY PRESS

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Cambridge, New York, Melbourne, Madrid, Cape Town,
Singapore, São Paulo, Delhi, Mexico City

Cambridge University Press
32 Avenue of the Americas, New York, NY 10013-2473, USA

www.cambridge.org
Information on this title: www.cambridge.org/9781605113838

Materials Research Society
506 Keystone Drive, Warrendale, PA 15086, USA
http://www.mrs.org

First published 2012

CODEN: MRSPDH

ISBN: 978-1-60511-383-8 Hardback

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https://doi.org/10.1557/opl.2012.996 Published online by Cambridge University Press

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PREFACE

Symposium Z, "Functional Metal Oxide Nanostructures" was held November 27–December 2 during the 2011 MRS Fall Meeting in Boston, Massachusetts.

Metal oxides represent an assorted and appealing class of materials whose properties cover the entire range from metals to semiconductors to insulators and almost all aspects of material science and physics in areas including superconductivity and magnetism. In the past few years, a great deal of progress has been made in the field of metal oxide nanostructures particularly with regard to innovative synthetic pathways as well as the structural, physical and chemical characterization, modification and assembly of nanostructured oxides to exploit their nanoscopic properties and their size-dependent modulation.

Specifically, the field of metal oxide nanostructured morphologies (e.g., nanowires, nanobelts, nanorods, nanotetrapods) has become one of the most active research areas within the nano-science community.

New fundamental research together with original and inspired potential applications is being continuously proposed, including nanowire electronics, nanowire photonics, nanowires as electron sources, and nanowires and their heterostructures for energy conversion and storage.

These proceedings captures some of the most recent developments in the field of synthesis, structural and functional characterization of self-assembled metal oxides nanostructures and heterostructures thereof to illustrate their application potential as functional materials, with particular consideration given to the capability to tailor and control material properties via surface and structural modifications and possible device integration.

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April 2012

https://doi.org/10.1557/opl.2012.996 Published online by Cambridge University Press

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