

MRS SYMPOSIUM PROCEEDINGS

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Advances in Structures, Properties and Applications of Biological and Bioinspired Materials

EDITORS

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**Advances in Structures, Properties
and Applications of Biological
and Bioinspired Materials**

Symposia held December 1–6, 2013 Boston, Massachusetts, U.S.A.

EDITORS

Syam P. Nukavarapu

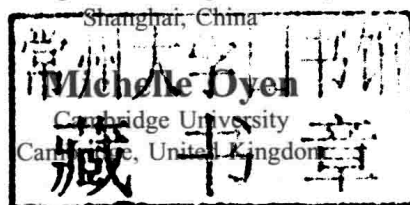
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**Advances in Structures, Properties and Applications
of Biological and Bioinspired Materials**

PREFACE

There were eleven symposia conducted with a focus on biomaterials under the sub-class of “Biomaterials and Soft Matter” in the MRS 2013 fall meeting. Symposia, H, C, D and J, with a considerable overlap in the content and focus have been combined into single proceedings entitled “Advances in Structures, Properties and Applications of Biological and Bioinspired Materials”. This volume contains both invited as well as regular submissions to the symposia listed below:

Symposium H, “Advanced Composites and Structures for Tissue Engineering”
Symposium C, “Advances in Mechanics of Biological and Bioinspired Materials”
Symposium D, “Engineering and Application of Bioinspired Structured Materials”
Symposium J, “Materials for Neural Interfaces”

The aim of this volume is to provide state-of-the-art research in biomaterials and bio-inspired materials—their structures, properties, and applications. Biological materials provide the critical support for the proper function of the living systems. The wide range and complexity exhibited by biological materials is unmatched in current bio-inspired as well as biomaterials. Understanding the underlying operation principles of these materials will provide promising approaches to not only improve biomaterials and bio-inspired materials’ performances in the living systems, but also provide creative new materials and systems that enable the applications of those materials for bio-sensing to tissue engineering. This symposia Proceedings volume presents some of the most recent advancements in the following areas: (1) Tissue Engineering, (2) Bio-inspired Materials, (3) Bio-inspired structures, and (4) Neural Interfaces. We hope the papers in the volume will provide the readers some insight of the current methodologies and approaches used in studying fundamental problems associated with biological materials, biomaterials, and bio-inspired materials. Some stimulating discussions of potential applications of these materials are also offered in the volume, which represents the trend of research in this exciting area of materials science and engineering.

Syam Nukavarapu
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Tao Deng
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CONTENTS

Preface	xi
---------------	----

Materials Research Society Symposium Proceedings	xiii
--	------

ADVANCED COMPOSITES AND STRUCTURES FOR TISSUE ENGINEERING

* Composites and Structures for Regenerative Engineering	3
Cato T. Laurencin and Roshan James	

Novel and Unique Matrix Design for Osteochondral Tissue Engineering	17
Deborah L. Dorcenus and Syam P. Nukavarapu	

* Reducing Infections Using Nanotechnology	25
Thomas J. Webster	

Identifying Iron Oxide Based Materials that Can Either Pass or Not Pass through the <i>in vitro</i> Blood-brain Barrier	33
Di Shi, Linlin Sun, Gujie Mi, Soumya Bhattacharya, Suprabha Nayar, and Thomas J. Webster	

Nanostructured Ceramic and Ceramic-polymer Composites as Dual Functional Interface for Bioresorbable Metallic Implants	39
Ian Johnson, Qiaomu Tian, and Huinan Liu	

Novel Silicone-epoxy Composites for Dental Restorations	47
Liyun Ren, Vaibhav Pandit, Amanda Mixon, Crivello James, and Shiva P. Kotha	

Development of Hydroxyapatite-mediated Synthesis of Collagen-based Copolymers for Application as Bio Scaffolds in Bone Regeneration	53
Didarul Bhuiyan, John Middleton, and Rina Tannenbaum	

* Size Also Matters in Biodegradable Composite Microfiber Reinforced by Chitosan Nanofibers	59
Elisabete D. Pinho, Albino Martins, José V. Araújo, Rui L. Reis, and Nuno M. Neves	

*Invited Paper

Proliferation and Osteogenic Differentiation of Mesenchymal Stem Cells on Biodegradable Calcium-deficient Hydroxyapatite Tubular Bacterial Cellulose Composites.	71
Pelagie Favi, Madhu Dhar, Nancy Neilsen, and Roberto Benson	
Dielectrophoretical Fabrication of Hybrid Carbon Nanotubes-hydrogel Biomaterial for Muscle Tissue Engineering Applications.	81
Javier Ramón-Azcón, Samad Ahadian, Raquel Obregon, Hitoshi Shiku, Ali Khademhosseini, and Tomokazu Matsue	
<i>In Vitro</i> Examination of Poly(glycerol sebacate) Degradation Kinetics: Effects of Porosity and Cure Temperature.	87
Nadia M. Krook, Courtney LeBlon, and Sabrina S. Jedlicka	
Novel Absorbable Polyurethane Biomaterials and Scaffolds for Tissue Engineering.	93
Syam P. Nukavarapu, Rao S. Bezwada, Deborah L. Dorcemus, Neeti Srivastava, and Robert J. Armentano	
Control of Cell Adhesion and Detachment on Temperature-responsive Block Copolymer Langmuir Films.	101
Morito Sakuma, Yoshikazu Kumashiro, Masamichi Nakayama, Nobuyuki Tanaka, Umemura Kazuo, Masayuki Yamato, and Teruo Okano	
Biofunctional Thermo-responsive Polymeric Surface with Micropatterns for Label Free Cell Separation.	107
Yoshikazu Kumashiro, Jun Ishihara, Terumasa Umemoto, Kazuyoshi Itoga, Jun Kobayashi, Masayuki Yamato, and Teruo Okano	
Preliminary Investigation of a Sacrificial Process for Fabrication of Polymer Membranes with Sub-micron Thickness.	113
Luke A. Beardslee, Dimitrius A. Khaladj, and Magnus Bergkvist	
Fabrication and Morphological Investigation of Multi-walled Electrospun Polymeric Nanofibers.	119
Jamal Seyyed Monfared Zanjani, Burcu Saner Okan, Mehmet Yildiz, and Yusuf Menciloglu	

A Novel Injectable Chitosan Sponge Containing Brain Derived Neurotrophic Factor (BDNF) to Enhance Human Oligodendrocyte Progenitor Cells' (OPC) Differentiation.	.127
Mina Mekhail, Qiao-Ling Cui, Guillermina Almazan, Jack Antel, and Maryam Tabrizian	

ADVANCES IN MECHANICS OF BIOLOGICAL AND BIOINSPIRED MATERIALS

DNA i-motif Provides Steel-like Tough Ends to Chromosomes	.135
Raghvendra P. Singh, Ralf Blossey, and Fabrizio Cleri	
Scanning Acoustic Microscopy of Biological Cryosections: The Effect of Local Thickness on Apparent Acoustic Wave Speed	.143
Craig J. Williams, Helen. K. Graham, Xuegen Zhao, Riaz Akhtar, Christopher E.M. Griffiths, Rachel E.B. Watson, Michael J. Sherratt, and Brian Derby	
The Structure and the Mechanical Properties of a Newly Fabricated Cellulose-nanofiber/Polyvinyl-alcohol Composite	.149
Yukako Oishi and Atsushi Hotta	
Modular Peptide-based Hybrid Nanoprobes for Bio-imaging and Bio-sensing.	.155
Banu Taktak Karaca, James Meyer, Sarah VanOosten, Mark Richter, and Candan Tamerler	
Microstructure, Spectroscopic Studies and Nanomechanical Properties of Human Cortical Bone with Osteogenesis Imperfecta.	.163
Chunju Gu, Dinesh R. Katti, and Kalpana S. Katti	

ENGINEERING AND APPLICATION OF BIOINSPIRED STRUCTURED MATERIALS

Mechanosensitive Channels Activity in a Droplet Interface Bilayer System	.171
Joseph Najem, Myles Dunlap, Sergei Sukharev, and Donald J. Leo	

Cellulose Nanofibril (CNF) Reinforced Starch Insulating Foams.	.177
N. Yildirim, S.M. Shaler, D.J. Gardner, R. Rice, and D.W. Bousfield	
Degradation Control of Cellulose Scaffold by Malaprade Oxidation. . .	.191
Wichchulada Konkumnerd, Suong-Hyu Hyon, and Kazuaki Matsumura	
* Toward Bioinspired Nanostructures for Selective Vapor Sensing: Diverse Vapor-induced Spectral Responses within Iridescent Scales of <i>Morpho</i> Butterflies.	.197
Timothy A. Starkey, Peter Vukusic, and Radislav A. Potyrailo	
Integrative Chemistry toward Biosourced SiC Macrocellular Foams Bearing Unprecedented Heat Transport Properties.	.209
Simona Ungureanu, Marc Birot, Gérard Vignoles, Christophe Lorette, Gilles Sigaud, Hervé Deleuze, and Rénal Backov	
Preparation of Porous B-type Carbonate Apatite with Different Carbonate Contents for an Artificial Bone Substitute	.215
Toshimitsu Tanaka, Tomohiko Yoshioka, Toshiyuki Ikoma, and Junzo Tanaka	
* Science of Swimming and the Swimming of the Soft Shelled Turtle.	.221
Shinichiro Ito	
Effect of Microtubules Hierarchy on Photoinduced Hydrogen Generation and Application to Artificial Photosynthesis	.229
Kosuke Okeyoshi, Kawamura Ryuzo, Ryo Yoshida, and Yoshihito Osada	

MATERIALS FOR NEURAL INTERFACES

Investigating the Surface Changes of Silicon <i>in vitro</i> within Physiological Environments for Neurological Application	.237
Maysam Nezafati, Stephen E. Sadow, and Christopher L. Frewin	

*Invited Paper

Quantification of Axonal Outgrowth on a Surface with Asymmetric Topography	.243
Elise Spedden and Cristian Staii	
Improved Biphasic Pulsing Power Efficiency with Pt-Ir Coated Microelectrodes	.249
Artin Petrossians, Navya Davuluri, John J. Whalen, Florian Mansfeld, and James D. Weiland	
Atomic Layer Deposited Al₂O₃ and Parylene C Bi-layer Encapsulation for Utah Electrode Array Based Neural Interfaces	.259
Xianzong Xie, Loren W. Rieth, Rohit Sharma, Sandeep Negi, Rajmohan Bhandari, Ryan Caldwell, Prashant Tathireddy, and Florian Solzbacher	
Author Index	.267
Subject Index	.269

