New Developments in Biology, Biomedical & Chemical Engineering and Materials Science

- Proceedings of the International Conference on Biology and Biomedical Engineering (BBE 2015)
- Proceedings of the International Conference on Chemical Engineering and Materials Science (CEMS 2015)

Vienna, Austria, March 15-17, 2015

Edited by

Manijeh Razeghi
Valeri Mladenov
Photios A. Anninos

Recent Advances in Biology and Biomedicine Series | 8

New Developments in Biology, Biomedical & Chemical Engineering and Materials Science

NEW DEVELOPMENTS in BIOLOGY, BIOMEDICAL & CHEMICAL ENGINEERING and MATERIALS SCIENCE

Proceedings of the International Conference on Biology and Biomedical Engineering (BBE 2015)

Proceedings of the International Conference on Chemical Engineering and Materials Science (CEMS 2015)

Vienna, Austria
March 15-17, 2015

NEW DEVELOPMENTS in BIOLOGY, BIOMEDICAL & CHEMICAL ENGINEERING and MATERIALS SCIENCE

Proceedings of the International Conference on Biology and Biomedical Engineering (BBE 2015)

Proceedings of the International Conference on Chemical Engineering and Materials Science (CEMS 2015)

Vienna, Austria
March 15-17, 2015

Copyright © 2015, by the editors

All the copyright of the present book belongs to the editors. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the editors.

All papers of the present volume were peer reviewed by no less than two independent reviewers. Acceptance was granted when both reviewers' recommendations were positive.

Series: Recent Advances in Biology and Biomedicine Series | 8

ISSN: 1790-5125
ISBN: 978-1-61804-284-2

NEW DEVELOPMENTS in BIOLOGY, BIOMEDICAL & CHEMICAL ENGINEERING and MATERIALS SCIENCE

Proceedings of the International Conference on Biology and Biomedical Engineering (BBE 2015)

Proceedings of the International Conference on Chemical Engineering and Materials Science (CEMS 2015)

Vienna, Austria
March 15-17, 2015

Organizing Committee

Editors:
Professor Manijeh Razeghi, Center for Quantum Devices
Professor Valeri Mladenov, Technical University of Sofia, Bulgaria
Professor Photios A. Anninos, Democritus University of Thrace

Program Committee:
Prof. Peter Dieter, Faculty of Medicine `Carl Gustav Carus', Dresden, Germany
Prof. Andrei Korobeinikov, Centre de Recerca Matematica, Barcelona, Spain
Prof. Wolfgang Wenzel, Institute for Nanotechnology, Germany
Prof. Seiji Shibasaki, Hyogo University of Health Sciences, Japan
Prof. Gary A. Lorigan, Miami University, USA
Prof. Ziad Fajloun, Universite Libanaise, Lebanon
Prof. Nikolai N. Modyanov, University of Toledo, USA
Prof. Dhavendra Kumar, University of South Wales, UK
Prof. Geoffrey Arden, European Vision Institute, UK
Prof. Photios Anninos, Democritus University of Thrace, Alexandroupolis, Greece
Prof. Charles A. Long, Prof. Emeritus, University of Wisconsin, Stevens Point, Wisconsin, USA.
Prof. Tuan Pham, James Cook University, Townsville, Australia
Prof. W. Lakin, University of Vermont, USA
Prof. Lucio Tommaso De Paolis, University of Salento, Italy
Prof. Jean-Michel Jault, Institut de Biologie Structurale, France
Prof. Hassane Oudadesse, University of Rennes 1, France
Prof. Anita H. Corbett, Emory University School of Medicine, Atlanta, GA, USA
Prof. Toshiharu Horie, Teikyo Heisei University, Japan
Prof. Vadim V. Sumbayev, University of Kent, UK
Prof. Andre Surguchov, University of Kansas Medical Center, Kansas City, USA
Prof. Rona R. Ramsay, University of St Andrews, North Haugh, St Andrews, UK
Prof. Daniel Martins-de-Souza, University of Cambridge, UK
Prof. Roberta Chiaraluce, Sapienza Universita di Roma, Roma, Italy
Prof. George Perry, The University of Texas at San Antonio, USA
Prof. Gertz I. Likhtenshtein, Ben-Gurion University of the Negev, Israel
Prof. Vivo Turk, Jozef Stefan Institute, Slovenia
Prof. Makoto Komiyama, University of Tsukuba, Japan
Prof. Shunsuke Meshitsuka, Tottori University, Japan
Prof. Jean-Michel Jault, Institut de Biologie Structurale, Jean-Pierre Ebel, France
Prof. Ziad Fajloun, Ecole Doctorale des Sciences et Technologie, Universite Libanaise Tripoli, Libya

Prof. Gang-Yu Liu, University of California, Davis Campus, CA, USA
Prof. Zhibing Zhang, University of Birmingham, Birmingham, UK
Prof. Jean-Francois Gohy, Université catholique de Louvain, Belgium
Prof. Waler Caseri, ETH, Zurich, Switzerland
Prof. Jacques Desbrieres, Universite De Pau Et Des Pays De L'Adour, France
Prof. Adrian Schumpe, Technical University of Braunschweig, Germany
Prof. Chris Bowen, University of Bath, Bath, UK
Prof. Jerzy Baldyga, Technical Univeristy Warszawska, Poland
Prof. Alirio Rodrigues, University of Porto, Portugal
Prof. Mostafa Barigou, University of Birmingham, Birmingham, UK
Prof. Jaime Wisniak, Ben-Gurion University of the Negev, Beer-Sheva, Israel
Prof. Sohail Murad, University of Illinois at Chicago, USA
Prof. Konstantinos E. Kakosimos, Texas A&M University at Qatar, Doha, Qatar
Prof. Raghunath V. Chaudhari, University of Kansas, USA

Prof. Xijun Hu, The Hong Kong University of Science and Technology, Kowloon, Hong Kong
Prof. Deepak Kunzru, Indian Institute of Technology, Kanpur, India
Prof. Amit Bandyopadhyay, AAAS Fellow , ASM International Fellow , AIMBE Fellow and ACerS Fellow, Washington State University, Pullman, State of Washington, USA
Prof. Yong Ding, Georgia Institute of Technology, Atlanta, GA, USA
Prof. Yulin Deng, Georgia Institute of Technology, Atlanta, GA, USA
Prof. Paul H. Holloway, Distinguished Prof., University of Florida, Gainesville FL, USA
Prof. Saad Khan, North Carolina State University, Raleigh, North Carolina, USA
Prof. Manijeh Razeghi, Northwestern University, Evanston, IL, USA
Prof. Igor Sevostianov, New Mexico State University, Las Cruces, New Mexico, USA
Prof. Mohindar S. Seehra, West Virginia University, Morgantown, West Virginia, USA
Prof. Tao Liu, Florida State University, Tallahassee, Florida, USA
Prof. Daniel Guay, Institut National de la Recherche Scientifique (INRS), Universite du Quebec,Quebec, Canada
Prof. Tian Tang, University of Alberta, Edmonton, Alberta, Canada
Prof. Roland Frankenberger, University of Marburg, Marburg, Germany
Prof. Mohamedally Kurmoo, Universite de Strasbourg, Strasbourg, France
Prof. C. C. Sorrell, University of New South Wales, Sydney, NSW, Australia
Prof. Concepcion Lopez, Universitat de Barcelona, Barcelona, Spain
Prof. Alan Dalton, University of Surrey, Guildford, Surrey, UK
Prof. Kourosh Kalantar-Zadeh, RMIT University, Melbourne, Australia
Prof. Constantinos Tsitsilianis, University of Patras, Patras, Greece
Prof. Tetsu Yonezawa, Hokkaido University, Kita Ward, Sapporo, Hokkaido Prefecture, Japan
Prof. Daolun Chen, Ryerson University, Toronto, Ontario, Canada
Prof. Mohamed M. Chehimi, Universite Paris Diderot, Paris, France
Prof. Vincenzo Fiorentini, Universita degli studi di Cagliari, Cagliari, Italy
Prof. Tamas Ungar, Eotvos Lorand University (ELTE), Budapest, Hungary
Prof. Anthony W. Coleman, Universite Claude Bernard Lyon 1, Lyon, France
Prof. Albert Chin, IEEE Fellow, OSA Fellow, National Chiao Tung University, Hsinchu, Taiwan
Prof. Artur Cavaco-Paulo, Universidade do Minho, Braga, Portugal
Prof. Yoshihiro Tomita, Kobe University, Kobe, Japan
Prof. Jian Wang, Los Alamos National Laboratory, Los Alamos, NM, USA
Prof. Byung K. Kim, Pusan National University, Busan, South Korea
Prof. John T. Sheridan, University College Dublin, Belfield, Dublin, Ireland
Prof. Chi-Wai Chow, National Chiao Tung University, Hsinchu, Taiwan
Prof. Christian M. Julien, Universite Paris-6, Paris, France
Prof. Chun-Hway Hsueh, National Taiwan University, Taipei, Taiwan
Prof. Hyung-Ho Park, Yonsei University, Seodaemun-gu, Seoul, Korea
Prof. Victor M. Castano, Universidad Nacional Autonoma de Mexico, Mexioc City, Mexico
Prof. Peter Chang, University of Saskatchewan, Saskatoon, Saskatchewan, Canada
Prof. Dean-Mo Liu, National Chiao Tung University, HsinChu, Taiwan
Prof. Rui Vilar, Instituto Superior Tecnico, Lisboa, Portugal
Prof. Hugh J. Byrne, Dublin Institute of Technology, Dublin, Ireland
Prof. Won-Chun Oh, Hanseo University, Seosan-si, Chungcheongnam-do, South Korea
Prof. Yuanhua Lin, Tsinghua University, Haidian, Beijing, China
Prof. S.C. Tjong, City University of Hong Kong, Sham Shui Po District,New Kowloon, Hong Kong
Prof. Huan-Tsung Chang, National Taiwan University, Taipei City, Taiwan
Prof. Yoshitake Masuda, National Institute of Advanced Industrial Science and Technology (AIST), Tokyo, Japan
Prof. Jing Zhang, Donghua University, Shanghai, China
Prof. Veronica Cortes de Zea Bermudez, Universidade de Tras-os-Montes e Alto Douro, Vila Real, Portugal
Prof. Jun Zhang, Inner Mongolia University, Hohhot, Inner Mongolia, China
Prof. Israel Felner, Hebrew University of Jerusalem, Jerusalem, Israel
Prof. Sukhvinder Badwal, CSIRO Energy Technology, Australia

Prof. Te-Hua Fang, National Kaohsiung University of Applied Sciences (KUAS), Kaohsiung, Taiwan
Prof. Belkheir Hammouti, Mohammed Premier University, Oujda, Morocco
Prof. Mohd Sapuan Salit, Universiti Putra Malaysia, Selangor, Malaysia
Prof. Kwansoo Chung, Seoul National University, Seoul, South Korea
Prof. Zhongfang Chen, University of Puerto Rico, San Juan, Puerto Rico
Prof. Soon-Ku Hong, Chungnam National University, Daejeon, South Korea
Prof. Hannes Jonsson, University of Iceland, Reykjavik, Iceland
Prof. Byron Gates, Simon Fraser University, 8888 University Drive, Burnaby, B.C., Canada
Prof. Culea Eugen, Technical University of Cluj-Napoca, Cluj-Napoca, Romania
Prof. Vesselin Dimitrov, University of Chemical Technology and Metallurgy, Sofia, Bulgaria
Prof. Shadpour Mallakpour, Isfahan University of Technology, Isfahan, Iran
Dr. Stergios Pispas, National Hellenic Research Foundation (NHRF), Athens, Greece
Dr. Anna Lukowiak, Polish Academy of Science, Wroclaw, Poland
Dr. Dimitris Tsiourvas, NCSR "Demokritos", IAMPPNM, Dept. of Physical Chemistry, 15310 Aghia Paraskevi, Attiki, Greece.

Additional Reviewers

Jose Flores	The University of South Dakota, SD, USA
Abelha Antonio	Universidade do Minho, Portugal
Lesley Farmer	California State University Long Beach, CA, USA
Takuya Yamano	Kanagawa University, Japan
Miguel Carriegos	Universidad de Leon, Spain
Francesco Zirilli	Sapienza Universita di Roma, Italy
George Barreto	Pontificia Universidad Javeriana, Colombia
Eleazar Jimenez Serrano	Kyushu University, Japan
Tetsuya Yoshida	Hokkaido University, Japan
Philippe Dondon	Institut polytechnique de Bordeaux, France
Genqi Xu	Tianjin University, China
M. Javed Khan	Tuskegee University, AL, USA
Xiang Bai	Huazhong University of Science and Technology, China
Dmitrijs Serdjuks	Riga Technical University, Latvia
Hessam Ghasemnejad	Kingston University London, UK
José Carlos Metrôlho	Instituto Politecnico de Castelo Branco, Portugal
João Bastos	Instituto Superior de Engenharia do Porto, Portugal
Tetsuya Shimamura	Saitama University, Japan
Imre Rudas	Obuda University, Budapest, Hungary
Konstantin Volkov	Kingston University London, UK
Frederic Kuznik	National Institute of Applied Sciences, Lyon, France
James Vance	The University of Virginia's College at Wise, VA, USA
Angel F. Tenorio	Universidad Pablo de Olavide, Spain
Sorinel Oprisan	College of Charleston, CA, USA
Santoso Wibowo	CQ University, Australia
Jon Burley	Michigan State University, MI, USA
Kazuhiko Natori	Toho University, Japan
Shinji Osada	Gifu University School of Medicine, Japan
Francesco Rotondo	Polytechnic of Bari University, Italy
Deolinda Rasteiro	Coimbra Institute of Engineering, Portugal
Alejandro Fuentes-Penna	Universidad Autónoma del Estado de Hidalgo, Mexico
Moran Wang	Tsinghua University, China
Bazil Taha Ahmed	Universidad Autonoma de Madrid, Spain
Andrey Dmitriev	Russian Academy of Sciences, Russia
Masaji Tanaka	Okayama University of Science, Japan
Matthias Buyle	Artesis Hogeschool Antwerpen, Belgium
Kei Eguchi	Fukuoka Institute of Technology, Japan
Zhong-Jie Han	Tianjin University, China
Valeri Mladenov	Technical University of Sofia, Bulgaria
Ole Christian Boe	Norwegian Military Academy, Norway
Yamagishi Hiromitsu	Ehime University, Japan
Stavros Ponis	National Technical University of Athens, Greece
Minhui Yan	Shanghai Maritime University, China

Table of Contents

Drill-Ability Studies of Laser Drilled Micro Holes on CFRP Composites 11
Anarghya A., Yatheesha R. B., Gurumurthy B. M., Nitish Rao, Ranjith B. S.

3D Biopolymer Scaffolds for Stem-Cell Culture in Biomedical Engineering 18
Q. T. Nguyen, E. Al Tawil, A. Monnier, B. Deschrevel

An Intelligent Diagnostic System for Lung Cancer based on Principle Component Analysis - Wavelet Support Vector Machines Classifiers 23
Derya Avci

Cytoplasmic Motion Visualization and Analysis of C. elegans Embryo 27
C. Atupelage, K. Kyoda, S. Onami, H. Nagahashi

Development of a Portable System for Vibration Stimulation to Improvement of Walking Stability 33
Park Min-Hwa, Kim Dong-Wook

An Automatic Diagnosis System for Hepatitis Diseases based on Extreme Learning Machine 38
Derya Avci

Agent based Amino Acid Elongation Model: Influence of Ribosome Abundance on Polysome Formation 42
Anton Semenchenko, Allbens Atman

Biological Impact of Certain Substituted Monoazo Thiazole-thiophene and Their Seleno Like Moieties: Part I 53
Mohamed E. Khalifa , Adil A Gobouri

Grayscale and Binary Image Enhancement of Hand Vein Images to Aid Peripheral Intravenous Access 60
Marlina Yakno, Junita Mohamad-Saleh, Bakhtiar Affendi Rosdi

Photocatalytic Oxidation and Morphology Control of TiO2 Film 68
Jinshu Wang, Bingxin Zhao, Hongyi Li

Nanomaterials Synthesis in Combustion 74
Z. A. Mansurov

Rapid Screening 73 Antibiotic Drugs in Animal Feeds using Ultra-Performance Liquid Chromatography Coupled to FT-Orbitrap High Resolution Mass Spectrometry 83
Yu-an Sun, Qiuxia Zhang, Wei Ke, Zhenxing Li, Ke Wang, Guoqing Wang

Scaling-Up Liquid-Liquid Extraction Experiments with Deep Eutectic Solvents 91
Emad Ali, Sarwono Mulyono, Mohamed Hadj-Kali

Chemical Composition and Antibacterial Activity of Ceratonia Siliqua L. Growing in Boumerdes (Algeria) 96
N. Meziou-Chebouti, A. Merabet, N. Behidj, M. Kirouani, S. Aliouat

A Novel Automatic Thresholding Method based on Shape of Histogram for Microscopic Blood Cell Images 100
Engin Avci, Turker Tuncer, Resul Coteli, Esin Dogantekin

The Mechanism of PMF Nanoparticles in Invading A549 cells, A New Selective Drug Delivery for Cancer Therapy 104
Gehan A-R. Ahmed, Faten A. Khorshid, Alaa Khedr, Salem M. El-Hamidy, Numan A. Salah

Planckian Distributions in Molecular Machines, Living Cells, and Brains: The Wave-Particle Duality in Biomedical Sciences 115
Sungchul Ji

Authors Index 138