



Athens Journal of Sciences

Volume 2, Issue 2, June 2015

Table of Contents

President's Message	75
ARTICLES	
<u>Starch Pickering Emulsion: A Safe Vehicle for Topical Drug Delivery</u> <i>Joana Marto, Luis Gouveia, Lidia Goncalves, Aida Duarte, Pedro Pinto, Teresa Cidade, Eduardo Oliveira, Antonio Almeida and Helena Ribeiro</i>	77
<u>Materials for High-Speed Transport Systems</u> <i>Nataliya Kazantseva</i>	89
<u>The Physics of Clusters in Real Gases</u> <i>Boris Sedunov</i>	99
<u>Teaching Green Chemistry Principles to Undergraduate Students</u> <i>Mariya Rozov, Tyler K. Brescia, Lyanne Valdez and Rita K. Upmacis</i>	117
<u>Announcements</u>	131

Published by



The [Natural & Formal Sciences Research Division](#) of
The Athens Institute for Education and Research

[Athens Journal of Science](#): A journal of The [Natural & Formal Sciences](#) of
The Athens Institute for Education and Research: ISSN NUMBER: 2241-8466
DOI: 10.30958/ajs

Editor of this Journal (Acting)

Dr. Gregory T. Papanikos, President, ATINER

Editorial and Reviewers' Board of this Journal

<p>Dr. Panagiotis Petratos, Associate Professor of Computer Information Systems, California State University, Stanislaus, USA.</p> <p>Dr. Nicolas Abatzoglou, Professor, Department of Chemical & Biotechnological Engineering, University of Sherbrook, Canada, Chair Pfizer, PAT in Pharmaceutical Engineering, Director GREEN-TPV and GRTP-C & Pwelcomes.</p> <p>Dr. Tala Awada, Professor, University of Nebraska, USA.</p> <p>Dr. Laurence G. Rahme, Associate Professor, Department of Surgery, Microbiology and Immunobiology, Harvard Medical School, Boston, Massachusetts & Director of Molecular Surgical Laboratory, Burns Unit, Department of Surgery, Massachusetts General Hospital, USA.</p> <p>Dr. Abdullatif Abuhijleh, Professor, Chemistry Department, Birzeit University, Palestine.</p> <p>Dr. Mohammed Salah Aida, Professor, Taibah University, Saudi Arabia.</p> <p>Dr. Ana Fraiman, Professor, Department of Chemistry, Northeastern Illinois University, USA.</p> <p>Dr. Muhammad Shahidul Haque, Academic Member, ATINER & Professor, Bangladesh Agricultural University, Bangladesh.</p> <p>Dr. Hikmat Said Hasan Hilal, Academic Member, ATINER & Professor, Department of Chemistry, An-Najah N. University, Palestine.</p> <p>Dr. Snezhana Hristova, Professor, Department of Applied Mathematics, Plovdiv University, Bulgaria.</p> <p>Dr. Sandra L. Maldonado-Ramírez, Professor, Department of Biology, University of Puerto Rico, Puerto Rico.</p> <p>Dr. Yiannis Papadopoulos, Professor of Computer Science, Leader of Dependable Systems Research Group, University of Hull, UK.</p> <p>Dr. Eithel Petrou, Academic Member, ATINER & Professor and Chair, Department of Physics, Erie Community College-South, State University of New York, USA.</p> <p>Dr. Irena Pevac, Professor, Department of Computer Science, Central Connecticut State University, USA.</p> <p>Dr. Mario Romanazzi, Professor, Department of Environmental Sciences, Informatics and Statistics, Ca' Foscari University of Venice, Italy.</p> <p>Dr. Carlos Muñoz Ruiz, Professor, Technological Institute of Costa Rica, Costa Rica.</p> <p>Dr. M. Shakila, Professor, Department of Food Technology, Avinashilingam University, India.</p> <p>Dr. Joseph M. Shostell, Professor and Department Head, Math, Sciences & Technology Department, University of Minnesota Crookston, USA.</p> <p>Dr. Ramzi Suleiman, Professor, Department of Psychology, University of Haifa, Israel and Department of Philosophy, Birzeit University, Palestine.</p> <p>Dr. Macrina Tamayo-Zafaralla, Emeritus Professor, Institute of Biological Sciences, University of the Philippines Los Baños, Philippines.</p> <p>Dr. Prakash C. Tiwari, Professor, Department of Geography, Kumaon University, India.</p> <p>Dr. Ramesh Chandra Tiwari, Professor, Department of Physics, Mizoram University, India.</p> <p>Dr. Vibha Tiwari, Academic Member, ATINER & Professor, Techocrats Institute of Technology, India.</p> <p>Dr. Osman Yildirim, Professor, Department of Electrical Engineering, Istanbul Arel University, Turkey.</p> <p>Dr. Neli P. Zlatareva, Professor of Computer Science, Department of Computer Science, Central Connecticut State University, USA.</p> <p>Dr. Igor Bulyzhenkov, Head of Centre for Research International Projects, Moscow Institute of Physics and Technology, Russia.</p> <p>Dr. Jan Mesey, Head, Department of Fruit Science, Slovak Agriculture University in Nitra, Slovak Republic.</p> <p>Dr. Donald Allen, Director, Department of Mathematics, Texas A&M University, USA.</p> <p>Dr. Robert Marcos, Academic Member, ATINER & Director, Professional Development & Consultancy Services, Tarlac State University, Philippines.</p> <p>Dr. Balraj Singh, Academic Member, ATINER & Director, Icar, India.</p> <p>Dr. George Varghese, Director, Kerala State Council for Science Technology and Environment, India.</p> <p>Dr. Mohammad H. Al-Sayah, Associate Professor, Department of Biology, Chemistry & Environmental Sciences, American University of Sharjah, UAE.</p> <p>Dr. Hamit Ayberk, Associate Professor, Istanbul University, Turkey.</p> <p>Dr. Stefan Dimitrov, Associate Professor & Head, Department of Computing Systems, University of Sofia "St. Kliment Ohridski", Bulgaria.</p>	<p>Dr. Dana-Adriana Ilutiu-Varvara, Associate Professor, Technical University of Cluj-Napoca, Romania.</p> <p>Dr. Sevgi Ertugrul Karatayf, Associate Professor, Ankara University, Turkey.</p> <p>Dr. Sushil Kumar, Associate Professor, Department of Mathematics, Rajdhani College, University of Delhi, India.</p> <p>Dr. Jan Mohammed Mari, Associate Professor, Sindh Agriculture University, Pakistan.</p> <p>Dr. Anila Mesi-Dizdari, Academic Member, ATINER & Associate Professor, University of Shkodra Luigj Gurakuqi, Albania.</p> <p>Dr. Luciane Mulazani dos Santos, Associate Professor, Universidade do Estado de Santa Catarina, Brazil.</p> <p>Dr. Jose Pablo Paredes Sánchez, Associate Professor, University of Oviedo, Spain.</p> <p>Dr. Amit Sarin, Associate Professor, Amritsar College of Engineering & Technology, India.</p> <p>Dr. Ayşe Nil Tosun, Associate Professor, Department of Public Finance, Hacettepe University, Turkey.</p> <p>Dr. Salih M. Al-Rashidi, Assistant Professor, Mosul University, Iraq.</p> <p>Dr. Azzurra Annunziata, Assistant Professor in Agricultural Economics and Food Marketing, Department of Economic and Legal Studies, University of Naples Parthenope, Italy.</p> <p>Dr. Mukhtar Ahmad Bhat, Assistant Professor, Department of Botany, Amar Singh College, University of Kashmir, India.</p> <p>Dr. Shahadut Hossain, Assistant Professor, Department of Statistics, UAE University, UAE.</p> <p>Dr. Ramesh Kumar, Assistant Professor, Department of Horticulture, Vanavarayar Institute of Agriculture, India.</p> <p>Dr. Asia Majeed, Assistant Professor, Mathematics Department, COMSATS Institute of Information Technology, Pakistan.</p> <p>Dr. João Simões, Assistant Professor, Department of veterinary Clinics, University of Trás-os-Montes e Alto Douro, Portugal.</p> <p>Dr. Tzvetelin S. Vassilev, Assistant Professor, Department of Computer Sciences and Mathematics, Nipissing University, Canada.</p> <p>Dr. Arzu Yakar, Academic Member, ATINER & Assistant Professor, Afyon Kocatepe University, Turkey.</p> <p>Dr. Kayode Adebayo, Principal Lecturer, the Federal Polytechnic, Nigeria.</p> <p>Dr. Samuel Adewuyi, Academic Member, Atiner & Senior Lecturer, Federal University Of Agriculture, Abeokuta, Nigeria.</p> <p>Dr. Jaiyeola Temitope Gbolahan, Academic Member, ATINER & Senior Lecturer, Department of Mathematics, Obafemi Awolowo University, Nigeria.</p> <p>Dr. Wanzala Wycliffe, Senior Lecturer, South Eastern Kenya University, Kenya.</p> <p>Dr. Tahir Munir Butt, Academic Member, ATINER & Lecturer, University of Agriculture, Faisalabad, Pakistan.</p> <p>Dr. Onwuchekwa Raphael Iheke, Academic Member, ATINER & Lecturer, Department of Agricultural Economics, Michael Okpara University of Agriculture, Nigeria.</p> <p>Dr. Fairouz Megdiche, Academic Member, ATINER & Lecturer, College of Applied Sciences, Oman.</p> <p>Dr. Duncan Mhakure, Academic Member, ATINER & Lecturer, University of Cape Town, South Africa.</p> <p>Dr. Okorafor Emmanuel Okereke, Academic Member, ATINER & Lecturer, Department of statistics, Michael Okpara University of Agriculture, Nigeria.</p> <p>Dr. Adebola A. Oketola-Adeyi, Lecturer, Department of Chemistry, University of Ibadan, Nigeria.</p> <p>Dr. Andreas Toupadakis, Lecturer, University of California, Davis, USA & Academic Member, ATINER.</p> <p>Dr. Ahmed Abdel-Fattah Ahmed Afifi, Researcher, National Research Center (NRC), Egypt.</p> <p>Dr. Soad Ibrahim Ibrahim Sayed Ahmed El-Naggat, Researcher, Animal Production Department, National Research Center, Egypt.</p> <p>Dr. B.G. Manjunath, Researcher, Dell International Services Private Limited, DGA, Bangalore, India.</p> <p>Dr. Khaled A. Talafih, Researcher, Ministry of Agriculture, Jordan.</p> <p>Dr. Amitava Rakshit, Department of Soil Science and Agricultural Chemistry, Institute of Agricultural Sciences, Banaras Hindu University, India.</p> <p>Dr. Kangle Ding, Associate Professor, Yangtze University, China.</p> <p>Dr. Abdelhalim Ebaid, Associate Professor, Department of Mathematics, University of Tabuk, Saudi Arabia.</p> <p>Dr. Ji--Dong Gu, Associate Professor, The University of Hong Kong, China.</p>
--	---

Managing Editor
Ms. Afrodete Papanikou

Athens Journal of Sciences

Volume 2, Issue 2, June 2015

Table of Contents

President's Message	5
ARTICLES	
<u>Development of Turf-type <i>Poa pratensis</i> L. Germplasm for Seed Production without Field Burning</u> <i>William Johnston, Richard Johnson, Charles Golob, Kathleen Dodson, Matthew Nelson, Gwen Stahnke and Elizabeth Guertal</i>	9
<u>Rare Earth Complex Catalysts Transforming CO₂ into Cyclic Carbonate under Mild Conditions</u> <i>Wen-Zhen Wang, Dan Zhao, Xin-Gang Jia and Lei-Jie Yang</i>	17
<u>An FPGA Based Computer System for Greenhouse Control</u> <i>Nonel Thirer and Igor Uchansky</i>	23
<u>Exploring an Educational System's Data through Fuzzy Cluster Analysis</u> <i>Erind Bedalli and Ilia Ninka</i>	33
<u>Announcements</u>	45

Theophrastus was a Greek philosopher of the Peripatetic school, and immediate successor of Aristotle in leadership of the Lyceum.



President's Message

The Athens Institute for Education and Research (ATINER) is pleased to announce the publication of a number of peer reviewed, open access journals of original research work. Most of the articles will be selected from the numerous papers that have been presented at the various annual international academic conferences organized by the different research divisions and units of the Athens Institute for Education and Research. The plethora of papers presented every year will enable the editorial board of each journal to select the best, and in so doing produce a top quality academic journal. In addition to papers presented, ATINER will encourage the independent submission of papers to be evaluated for publication.

The current issue is the second from the second volume of the [*Athens Journal of Sciences*](#) published by the [Natural & Formal Sciences Research Division](#) of the Athens Institute for Education and Research (ATINER).

The Head of the [Natural & Formal Sciences Research Division](#) is member of the Editorial Advisory Board. The Academic Members of the research unit are members of the Editorial Board and will assist the editor and the Editorial Advisory Board with the peer reviewing of all submitted papers. Currently, the academic members of the five research units consist of over 100 international experts from about 50 countries.

Gregory T. Papanikos
President
Athens Institute for Education and Research

