



(ATINER)



(ATINER)

Volume 6, Issue 4, December 2019

Articles

Front Pages

VEBIL YILDIRIM

[Centrifugal Force-Induced Elastic Field for a Stress-Free Annulus Made of Functionally Graded Polar Orthotropic Material from Circular Plates to Rings](#)

HUSSIEN MOTAWEH & MARWA NABIL

[Porous Silica for Removing Organic Impurities from Wastewater](#)

THOMAS FEHLMANN & EBERHARD KRANICH

[Testing Artificial Intelligence by Customers' Needs](#)

MICHAEL OGBEIDE & JOSEPH OSEMWENKHAE

[Some Improvements in Nonparametric Multivariate Kernel Density Estimation](#)



ATHENS INSTITUTE FOR EDUCATION AND RESEARCH

A World Association of Academics and Researchers

8 Valaoritou Str., Kolonaki, 10671 Athens, Greece.

Tel.: 210-36.34.210 Fax: 210-36.34.209

Email: info@atiner.gr URL: www.atiner.gr

Established in 1995



(ATINER)

(ATINER)

Mission

ATINER is a *World Non-Profit Association* of Academics and Researchers based in Athens. ATINER is an independent **Association** with a **Mission** to become a forum where Academics and Researchers from all over the world can meet in Athens, exchange ideas on their research and discuss future developments in their disciplines, **as well as engage with professionals from other fields**. Athens was chosen because of its long history of academic gatherings, which go back thousands of years to *Plato's Academy* and *Aristotle's Lyceum*. Both these historic places are within walking distance from ATINER's downtown offices. Since antiquity, Athens was an open city. In the words of Pericles, *Athens "... is open to the world, we never expel a foreigner from learning or seeing"*. ("Pericles' Funeral Oration", in Thucydides, *The History of the Peloponnesian War*). It is ATINER's **mission** to revive the glory of Ancient Athens by inviting the World Academic Community to the city, to learn from each other in an environment of freedom and respect for other people's opinions and beliefs. After all, the free expression of one's opinion formed the basis for the development of democracy, and Athens was its cradle. As it turned out, the Golden Age of Athens was in fact, the Golden Age of the Western Civilization. *Education* and *(Re)searching* for the 'truth' are the pillars of any free (democratic) society. This is the reason why *Education* and *Research* are the two core words in ATINER's name.

The Athens Journal of Sciences

ISSN NUMBER: 2241-8466- DOI: 10.30958/ajs

Volume 6, Issue 4, December 2019

Download the entire issue ([PDF](#))

<u>Front Pages</u>	i-viii
<u>Centrifugal Force-Induced Elastic Field for a Stress-Free Annulus Made of Functionally Graded Polar Orthotropic Material from Circular Plates to Rings</u> <i>Vebil Yıldırım</i>	231
<u>Porous Silica for Removing Organic Impurities from Wastewater</u> <i>Hussien Motaweh & Marwa Nabil</i>	253
<u>Testing Artificial Intelligence by Customers' Needs</u> <i>Thomas Fehlmann & Eberhard Kranich</i>	265
<u>Some Improvements in Nonparametric Multivariate Kernel Density Estimation</u> <i>Michael Ogbeide & Joseph Osemwenkhae</i>	287

Athens Journal of Sciences

Editorial and Reviewers' Board

Editors

- **Dr. Nicolas Abatzoglou**, *Head, [Environment Unit](#), ATINER; Professor, Department of Chemical & Biotechnological Engineering, Université de Sherbrooke, Canada;* Chair Pfizer, Processes and Analytical Technologies in Pharmaceutical Engineering; Director of GRTP-C & P (Groupe de recherches sur les technologies et procédés de conversion et pharmaceutiques); Fellow of Canadian Academy of Engineering.
- **Dr. Christopher Janetopoulos**, *Head, [Biology Unit](#), ATINER & Associate Professor, University of the Sciences, USA.(Biology)*
- **Dr. Ethel Petrou**, *Academic Member, ATINER & Professor and Chair, Department of Physics, Erie Community College-South, State University of New York, USA.*
- **Dr. Ellene Tratras Contis**, *Head, [Chemistry Unit](#), ATINER & Professor of Chemistry, Eastern Michigan University, USA.(Chemistry)*

Editorial Board

- Dr. Colin Scanes, Academic Member, ATINER & Emeritus Professor, University of Wisconsin Milwaukee, USA.
- Dr. Dimitris Argyropoulos, Professor, North Carolina State University, USA.
- Dr. Cecil Stushnoff, Emeritus Professor, Colorado State University, USA.
- Dr. Hikmat Said Hasan Hilal, Academic Member, ATINER & Professor, Department of Chemistry, An-Najah N. University, Palestine.
- Dr. Jean Paris, Professor, Polytechnique Montreal, Canada.
- Dr. Shiro Kobayashi, Academic Member, ATINER & Distinguished Professor, Kyoto Institute of Technology, Kyoto University, Japan.
- Dr. Jose R. Peralta-Videa, Academic Member, ATINER & Research Specialist and Adjunct Professor, Department of Chemistry, The University of Texas at El Paso, USA.
- Dr. Jean-Pierre Bazureau, Academic Member, ATINER & Professor, Institute of Chemical Sciences of Rennes ICSR, University of Rennes 1, France.
- Dr. Mohammed Salah Aida, Professor, Taibah University, Saudi Arabia.
- Dr. Zagabathuni Venkata Panchakshari Murthy, Academic Member, ATINER & Professor/Head, Department of Chemical Engineering, Sardar Vallabhbhai National Institute of Technology, India.
- Dr. Alexander A. Kamnev, Professor, Institute of Biochemistry and Physiology of Plants and Microorganisms, Russian Academy of Sciences, Russia.
- Dr. Carlos Nunez, Professor, Physics Department, University of Wales Swansea, UK.
- Dr. Anastasios Koulaouzidis, Academic Member, ATINER & Associate Specialist and Honorary Clinical Fellow of the UoE, The Royal Infirmary of Edinburgh, The University of Edinburgh, UK.
- Dr. Francisco Lopez-Munoz, Professor, Camilo Jose Cela University, Spain.
- Dr. Panagiotis Petratos, Professor, California State University-Stanislaus, USA.
- Dr. Yiannis Papadopoulos, Professor of Computer Science, Leader of Dependable Systems Research Group, University of Hull, UK.
- Dr. Joseph M. Shostell, Professor and Department Head, Math, Sciences & Technology Department, University of Minnesota Crookston, USA.
- Dr. Ibrahim A. Hassan, Professor of Environmental Biology, Faculty of Science, Alexandria University, Egypt & Centre of Excellence in Environmental Studies, King Abdulaziz University, Saudi Arabia.
- 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.
- Dr. Stefano Falcinelli, Academic Member, ATINER & Associate Professor, Department of Civil and Environmental Engineering, University of Perugia, Italy.
- Dr. Mitra Esfandiari, Academic Member, ATINER & Assistant Professor, Midwestern University, USA.
- Dr. Athina Meli, Academic Member, Academic Member, ATINER, Visiting Scientist and Research Scholar, University of Gent & University of Liege, Belgium and Ronin Institute Montclair, USA.

- **Vice President of Publications:** Dr Zoe Boutsoli
- **General Managing Editor of all ATINER's Publications:** Ms. Afrodete Papanikou
- **ICT Managing Editor of all ATINER's Publications:** Mr. Kostas Spyropoulos
- **Managing Editor of this Journal:** Ms. Olga Gkounta ([bio](#))

Reviewers' Board

[Click Here](#)

President's Message

All ATINER's publications including the e-journals are open access without any costs (submission, processing, publishing, open access paid by authors, open access paid by readers etc.) and are independent of the presentations made at any of the many small events (conferences, symposiums, forums, colloquiums, courses, roundtable discussions) organized by ATINER throughout the year. The intellectual property rights of the submitted papers remain with the author.

Before you submit, please make sure your paper meets some [basic academic standards](#), which include proper English. Some articles will be selected from the numerous papers that have been presented at the various annual international academic conferences organized by the different [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 ones, and in so doing, to produce a quality academic journal. In addition to papers presented, ATINER encourages the independent submission of papers to be evaluated for publication.

The current issue of the Athens Journal of Sciences (AJS) is the fourth issue of the sixth volume (2019). The reader will notice some changes compared with the previous volumes, which I hope is an improvement. An effort has been made to include papers which extent to different fields of the Natural and Formal Sciences.

Gregory T. Papanikos, President
Athens Institute for Education and Research



Athens Institute for Education and Research

A World Association of Academics and Researchers

8th Annual International Conference on Chemistry 20-23 July 2020, Athens, Greece

The [Chemistry Unit](#) of ATINER, will hold its **8th Annual International Conference on Chemistry, 20-23 July 2020, Athens, Greece** sponsored by the [Athens Journal of Sciences](#). The aim of the conference is to bring together academics and researchers of all areas of chemistry and other related disciplines. You may participate as stream organizer, presenter of one paper, chair a session or observer. Please submit a proposal using the form available (<https://www.atiner.gr/2020/FORM-CHE.doc>).

Academic Members Responsible for the Conference

- **Dr. Ellene Tratras Contis**, Head, Chemistry Unit, ATINER & Professor of Chemistry, Eastern Michigan University, USA.
- **Dr. Nicolas Abatzoglou**, Head, Environment Unit, ATINER & Professor, Department of Chemical & Biotechnological Engineering, University of Sherbrook, Canada, Chair Pfizer, PAT in Pharmaceutical Engineering, Director GREEN-TPV and GRTP-C & Pwelcomes.

Important Dates

- Abstract Submission: **16 December 2019**
- Acceptance of Abstract: 4 Weeks after Submission
- Submission of Paper: **22 June 2020**

Social and Educational Program

The Social Program Emphasizes the Educational Aspect of the Academic Meetings of Atiner.

- Greek Night Entertainment (This is the official dinner of the conference)
- Athens Sightseeing: Old and New-An Educational Urban Walk
- Social Dinner
- Mycenae Visit
- Exploration of the Aegean Islands
- Delphi Visit
- Ancient Corinth and Cape Sounion

Conference Fees

Conference fees vary from 400€ to 2000€
Details can be found at: <https://www.atiner.gr/2019fees>



Athens Institute for Education and Research

A World Association of Academics and Researchers

8th Annual International Conference on Physics 20-23 July 2020, Athens, Greece

The [Physics Unit](#) of ATINER, will hold its 7th Annual International Conference on Physics, 20-23 July 2020, Athens, Greece sponsored by the [Athens Journal of Sciences](#). The aim of the conference is to bring together academics and researchers of all areas of physics and other related disciplines. You may participate as stream organizer, presenter of one paper, chair a session or observer. Please submit a proposal using the form available (<https://www.atiner.gr/2020/FORM-PHY.doc>).

Important Dates

- Abstract Submission: **16 December 2019**
- Acceptance of Abstract: 4 Weeks after Submission
- Submission of Paper: **22 June 2020**

Academic Member Responsible for the Conference

- **Dr. Ethel Petrou**, Academic Member, ATINER & Professor and Chair, Department of Physics, Erie Community College-South, State University of New York, USA.
- **Dr. Bala Maheswaran**, Head, Electrical Engineering Unit, ATINER & Professor, Northeastern University, USA.

Social and Educational Program

The Social Program Emphasizes the Educational Aspect of the Academic Meetings of Atiner.

- Greek Night Entertainment (This is the official dinner of the conference)
- Athens Sightseeing: Old and New-An Educational Urban Walk
- Social Dinner
- Mycenae Visit
- Exploration of the Aegean Islands
- Delphi Visit
- Ancient Corinth and Cape Sounion

More information can be found here: <https://www.atiner.gr/social-program>

Conference Fees

Conference fees vary from 400€ to 2000€

Details can be found at: <https://www.atiner.gr/2019fees>

