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Research Articles

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Deciphering the Epigenetic Mechanisms of DNA Methylation in Plant Stress Response

Dr. Adebayo Oluwatobi, Prof. Mei-Ling Zhang, Dr. Samira El-Khatib

Department of Molecular Biology, University of Ibadan, Ibadan, Nigeria; Institute of Genetics, Makerere University, Kampala, Uganda; School of Biological Sciences, University of Nairobi, Nairobi, Kenya

Keywords: DNA methylation, epigenetics, plant stress response, abiotic stress, bisulfite sequencing, methylation-sensitive amplification

2.

Investigating Dark Matter Anomalies in Galactic Clusters Through Gravitational Lensing Techniques

Elżbieta Nowak, Wei Zhang, Ahmad Al-Mansour

Elżbieta Nowak - Nicolaus Copernicus University, Toruń, Poland; Wei Zhang - University of Tasmania, Hobart, Australia; Ahmad Al-Mansour - Central University of Venezuela, Caracas, Venezuela

Keywords: dark matter, gravitational lensing, galactic clusters, mass distribution, Hubble Space Telescope, European Southern Observatory

3.

Enhancing Photocatalytic Efficiency of TiO₂ Nanocomposites with Graphene Oxide for Environmental Applications

Gabriela Santos, Haruto Nakamura, Fatima Al-Mansouri

Vilnius University, Vilnius, Lithuania; Palacký University, Olomouc, Czech Republic; Massey University, Palmerston North, New Zealand

Keywords: TiO₂ nanocomposites, graphene oxide, photocatalysis, environmental remediation, methylene blue degradation, sol-gel synthesis

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Innovative Nanostructured Materials for Enhanced Photocatalysis: A Multi-Institutional Study

Lars Müller, Haruto Nakamura, Fatima Al-Sayed

Lars Müller: Tribhuvan University, Kathmandu, Nepal; Haruto Nakamura: University of Zimbabwe, Harare, Zimbabwe; Fatima Al-Sayed: University of Puerto Rico, San Juan, Puerto Rico

Keywords: nanostructured materials, photocatalysis, sol-gel processing, electrospinning, environmental remediation, energy conversion

5.

Evaluating the Efficacy of Novel Antiviral Therapies in Multi-Ethnic Populations: A Randomized Controlled Trial

Elena Müller, Hiroshi Tanaka, Amina Al-Hashimi

University of Rostock, Rostock, Germany; University of Costa Rica, San José, Costa Rica; University of the South Pacific, Suva, Fiji

Keywords: antiviral therapy, randomized controlled trial, multi-ethnic populations, viral load reduction, clinical symptoms, efficacy

6.

Analyzing Cognitive Biases in Economic Decision-Making: Insights from Diverse Cultural Contexts

Amina Khoury, José Luis Fernandez, Ying Mei Chen

Al-Baath University, Homs, Syria; University of Concepción, Concepción, Chile; Oklahoma State University, Stillwater, USA

Keywords: behavioral economics, cognitive biases, cultural context, decision-making, loss aversion, econometric models

7.

Advanced Techniques in Complex Analysis: A Study on Functions of a Complex Variable

Rajesh Mehra, Fatima Al-Khalifa, Angelica Marquez, Achieng Otieno

Department of Mathematics, University of Manitoba, Winnipeg, Canada; Department of Mathematics, University of Khartoum, Khartoum, Sudan; Department of Mathematics, University of Nairobi, Nairobi, Kenya

Keywords: complex analysis, contour integration, analytic continuation, complex variable, mapping properties, computational efficiency

8.

Innovative Strategies for Urban Air Pollution Control in Rapidly Developing Regions

Jiří Novák, Aisha Al-Mansouri, Lucía Fernández

Palacký University, Olomouc, Czech Republic; Jordan University of Science and Technology, Irbid, Jordan; University of Antioquia, Medellín, Colombia

Keywords: air pollution, urban planning, emission control, technological innovation, community engagement, environmental policy

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