JOURNAL OF THE NIGERIAN ASSOCIATION OF MATHEMATICAL PHYSICS [TNAMP]



The submission of a paper implies *it has not been* published elsewhere, and it is not under consideration for publication with other journals. Once a paper is accepted, it is assumed that the author has ceded the copyright to the Nigerian Association of Mathematical Physics.

Manuscripts must be in English Language, should be typed in double spacing and should not exceed 20 typed A4 paper in length. Authors are urged to pay careful attention to symbols, which should be typed neatly and unambiguously, using equation editor (NOT SYMBOLS) and separating equation number from the equation file and each equation statement should NOT BE GROUPED and should be properly aligned to distinguish subscripts and superscripts. Any paper with mathematical equations, typed without using equation editor would not be grouped as objects. All tables, figures and references must be cited in the body of the paper. Tables, figures and references should be numbered in the order in which they are cited in the text. All graphs and figures should be neatly drawn or plotted and bold enough in case of enlargement.

The Standard International (SI) system of units should be used in all manuscripts. Unusual symbols, abbreviations or notations should be defined when first mentioned in the text.

Authors should also submit CD (Compact disc, not diskette) containing their manuscripts done in Microsoft word 2003 and NOT in PDF. Authors should be sure that their soft copy is VIRUS-FREE, otherwise the paper would be rejected and any paper not on CD would also be rejected.

Manuscripts should contain the following headings, where appropriate: **Title** (followed by the author's name, address, e-mail and phone number); **Abstract** (that is, a brief summary of the contents and conclusion of the paper, not exceeding 200 words); **Introduction, Theoretical analysis, Experimental work, Results and Discussion, Conclusion, Acknowledgement and References. The numbering of the headings and subheadings and references should be as in the Journal of NAMP.**

All papers will be acknowledged and refereed and papers once received will not be returned to authors Contributors of an accepted paper will be expected to pay a publication charge. As a result of the highly unstable economic climate, publication charges are subject to frequent review. Contributors of articles are therefore expected to liaise with the Editor-in-chief to obtain the most recent information on the charges they are to pay.

> Professor J.O.A. Idiodi, Editor-in-chief, e-mail address:jidiodi@hotmail.com, Department of Physics, University of Benin, Benin City, Nigeria.

Journals of the Nigerian Association of Mathematical Physics Volume 65, (October 2022–August 2023 Issue)

Contents

| Evaluation of Reinforced Concrete Beams Strengthened Externally | |
|--|-----|
| by A Two-Layer Of Carbon Fiber Reinforced Polymer | |
| John A.T. and Nwankwo E. | 111 |
| Application of Response Surface Methodology for the Optimization | |
| Modeling of Delivery Flexibility for SMES In Nigeria. | |
| Enaghinor A. L., Ekpu M. and Ukrakpor F. | 117 |
| An Economic Order Quantity Model for Delayed Deteriorating | |
| Items With Linear Demand Rate And Two Storage Facilities | |
| Usman Lawal, Murtala Sani and Babangida Bature | 125 |
| Adsorbent Treatment of Complex Industrial Wastewater: Optimization | |
| of Process Conditions By Response Surface Method | |
| Oyedoh, E.A., Ayi E.M. and Salokun O. | 139 |
| Assessing Earthing System through Geoelectrical Investigation | |
| of Soil Resistivity On A Site In Oyo Town, Oyo, Nigeria | |
| A.O. Oluwadare, E. J. Oluwadare, P. C. Amalu, and O. B. Adebayo | 147 |
| α -Fuzzy Fixed Points of Hesitant Fuzzy Mapping | |
| K.E. Osawaru | 157 |
| Application of Mann Kendall and Arima Model in Detecting and | |
| Modeling The Trends In Under-Five Deaths | |
| Onoghojobi B [,] , Tanimu Mohammed and Olewuezi N.P. | 161 |
| Nonlinear Regression Parameter Estimates Using Genetic Algorithms | |
| Onoghojobi B., Olewuezi N.P. and Omojarabi O. | 173 |
| Biomechanical Dynamics Of Severe Acute Respiratory Syndrome (SARS) | |
| and the Prediction of Inbuilt Raising Multiplier λ . | |
| Egboro S.A., Akpata. E. and Enaibe E. A. | 179 |
| Towards A Framework Establishing Security Criteria for | |
| Recognition-Based Graphical Password Schemes | 101 |
| Babatunde J. Odetayo and Binitie Amaka Patience | 191 |
| Theoretical Exact Calculation of the Groundstate Energies | |
| of Two Electron Interaction In 1d Four Sites System | 100 |
| Akpata Erhieyovwe and Enaibe A. Edison | 199 |
| Parameter Estimation of Linear Regression Model with | |
| Multicollinearity and Heteroscedasticity Problems | 205 |
| Asimi A. Amalare, Kayode Ayinde and Kehinde Onanuga | 207 |
| Alternative Estimator in the Analysis OI variance | |
| Technique in The Presence Of Outliers | 217 |
| ()dior A K and ()veveni (+ M | 217 |

JOURNAL

of the

NIGERIAN ASSOCIATION OF MATHEMATICAL PHYSICS

Vol. 65

| Radiological Impact Assessment of Natural Radioactivity of Ceramic | |
|--|-----------|
| Wares and Decorations in Abeokuta, Nigeria | |
| OGUNOBI S.G., ABDULKAREEM A.A. and Ayodele A.T. | 1 |
| Investigating the Effect of Iron Dopants Concentration On The | |
| Optical Properties of Silar Deposited Znsfe Thin Films | |
| V.N. Udeajah and D.U. Onah | 11 |
| Modeling The Impact Of Rainfall On Power Outages In Nigeria | |
| Efosa Arnold Omoroghomwan ¹ and Omoifoh Martins Oyedoh | 15 |
| Energy and Economic Evaluation Of The 3000kwp Grid Connected Photovoltaic | |
| Power Plant in Umuoghara Quarry Industrial Cluster, Nigeria | |
| Nworie Ikechukwu Christian, Agbo Peter Ekuma, Oko Kingsley I., | |
| Brown Ndifereke Brown W. and Ugah John O. | 21 |
| The Effect Of Passive Single Slope Wick Tilted Type Solar Still In Promoting | |
| Public Health, Through Physics Techniques, In Energy Physics | |
| Hayatu Abba Ibrahim and Nura Yakubu | 27 |
| Preparation of Reduced Graphene Oxide: Application In A Patterned Temperature Sensor | |
| Godwin, O. and ² Ekpekpo, A. | 33 |
| Analytical Shooting Technique for The Solution Of Two Point | |
| Nonlinear Boundary Value Problems | |
| ADERIBIGBE Adebowale Niyi, ODERINU Razak Adekola and BEPO Adeyemi Ademola | 39 |
| Sensitivity Analysis of A Tuberculosis (TB) Mathematical Model | |
| Vegha Vaachia, Onwubuya Isaac Obiajulu and Mande Timothy Terna | 47 |
| Amplitude Distributions Describing Ocean Wave Field Events | |
| Vincent E. Asor and Ezekiel O. Okeke | 57 |
| Numerical Solution and Simulation of A Single-Phase, One-Dimensional, | |
| Slightly Compressible Fluid Flow In A Petroleum Reservoir | |
| Vincent Ele Asor, Zuonaki Ongodiebi and Chidinma N. Nwosu | 63 |
| Influence of Damping Coefficients on the Response to Moving Distributed | |
| Masses of Rayleigh Beams Resting on Bi-Parametric Subgrade | |
| Famuagun K.S. | 71 |
| Modeling And Forecasting Life Expectancy At Age Sixty-Five In The Population | |
| Of Nigeria Using Autoregressive Integrated Moving Average (Arima) Models | |
| Awariefe C. and Ekruyota G. | 87 |
| Bootstrapping Certain Measures Of Location | |
| Awariefe C. and ILOH H.G. | <i>95</i> |
| Thermodynamic Properties Of Inverted Isotropic Oscillator | |
| with Delta Function Potential In A Magnetic Field | |
| Alalibo T. Ngiangia, Okechukwu Amadi and Tombotamunoa W. J. Lawson | 103 |