



Researchers Journal of Science and Technology (REJOST)



A specialized journal for timeous dissemination of scientifically significant and novel advances of research outcomes within the enclave of science and technology

EDITOR- IN – CHIEF

Dr. Nyakno J. George

Department of Physics

Akwa Ibom State University, Nigeria +234 8024087839
nyaknogeorge@aksu.edu.ng; nyaknojimmyg@gmail.com

DEPUTY EDITOR

Dr. Aniekan M. Ekanem

Department of Physics

Akwa Ibom State University, Nigeria +234 7038032166
aniekanekanem@aksu.edu.ng; anny4mart@yahoo.com

MEMBERS OF REJOST EDITORIAL/ADVISORY BOARD

- | | |
|-----------------------------------|--|
| 1. Prof. Idongesit O. Isaac | Department of Mathematics, Akwa Ibom State University, Nigeria |
| 2. Prof. Udo J. Ibok | Department of Chemistry, Akwa Ibom State University, Nigeria |
| 3. Prof. Veronica J. Umoh | Department of Microbiology, Akwa Ibom State University, Nigeria |
| 4. Prof. Umoren E. Umoren | Department of Animal Science, Akwa Ibom State University, Nigeria |
| 5. Prof. Nsikak E. Bassey | Department of Geology, Akwa Ibom State University, Nigeria |
| 6. Prof. Jamal Asfahani | Department of Geology, Atomic Energy Commission of Syria |
| 7. Prof. Victor Uzodinma Chukwuma | Department of Physics, Olabisi Onabanjo University, Ago Iwoye, Nigeria |
| 8. Prof. Anthony E. Akpan | Department of Applied Geophysics, University of Calabar, Nigeria |
| 9. Prof. Akpan Ndem Ikot | Department of Physics, University of Port Harcourt, Nigeria |
| 10. Prof. Jarlath Umoh | Department of Animal Science, Akwa Ibom State University, Nigeria |
| 11. Prof. Ekaette Enang | Department of Statistics, University of Calabar, Nigeria |
| 12. Dr. Anthony Usoro | Department of Statistics, Akwa Ibom State university, Nigeria |
| 13. Dr. Ime B. Obot | King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia |
| 14. Dr. Thomas Harry | Department of Geology, Akwa Ibom State University, Nigeria |
| 15. Dr. Imeh J. Umoren | Department of Computer Science, Akwa Ibom State University, Nigeria |
| 16. Dr. Mfon Udoh | Department of Mathematics, Akwa Ibom State University, Nigeria |
| 17. Dr. Aniefiok E. Ite | Department of Chemistry, Akwa Ibom State University, Nigeria |
| 18. Engr. Dr. Unwana M. Ekpe | Department of Elect./Electronics Eng., Akwa Ibom State University, Nigeria |
| 19. Dr. Godwin Ansa | Department of Computer Science, Akwa Ibom State University, Nigeria |
| 20. Dr. Mbosowo Etukudoh | Department of Biology, Federal University, Otueke, Nigeria |
| 21. Dr. Matthew Iseh (Secretary) | Department of Statistics, Akwa Ibom State university, Nigeria |

Copyright (C) 2021 REJOST - All right Reserved

This journal and the individual contributions contained in it are protected under copyright by REJOST and the following terms and conditions apply to their use:

- Photocopies of single articles may be made for personal use as allowed by national copyright laws
- Permission of publisher and payment of a fee is required for all other photocopying, including multiple or systematic copying, copying for advertising or promotional purposes, resale and all forms of document delivery. Permission may be sought directly from REJOST at the email address: rejost21@gmail.com
- As outlined above 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 permission of the publisher through the above email.

REJOST

RESEARCHERS JOURNAL OF SCIENCE AND TECHNOLOGY

Vol.1 (1), December, 2021

A specialized journal for timeous dissemination of scientifically significant and novel advances of research outcomes within the enclave of science and technology

Vol. 1(1) December, 2021

Published by the faculty of Physical sciences,
Akawa Ibom state University
P.M.B.1167, Uyo, Nigria

E-mail: rejost21@gmail.com

Table of contents

<i>Ekane, A. M. Estimation of aquifer geohydrodynamic properties using the Inverse Slope method</i>	1
<i>Yawo, O. J & Akpan, I. O. Assessment of heavy metals concentration in sediments of Utibete River, Eastern Obolo, Southeastern Nigeria using particle induced X-ray emission (PIXE) technique</i>	17
<i>Thomas, J. E. Lithosphere-Atmosphere-Ionosphere Coupling Processes for Pre-, Co-, and Post Earthquakes: A case study of Northern Mariana, U.S.A. Earthquake of 31st October, 2007</i>	37
<i>Umoren, I., Inyang, S. & Silas, A. Intelligent Surveillance and Facial Recognition System for Efficient Border Monitoring and Threats Prediction Using Machine Learning Approach</i>	47
<i>Nyong A. E., Peter, I. O., Awaka-Ama, J. J. & Udoh, G. J. Self- Cleaning Materials: Review of Recent Progress and Innovations</i>	64
<i>Etesin, U. M., Harry, T. A. & Isotuk, U. G. Assessment of the Quality of water samples from Private Boreholes in Eket Local Government Area, Akwa Ibom State, Nigeria</i>	72
<i>Umoren, I., Ekong, O. & Ekong, B. Modeling and Evaluation of Soft Handoff in Wireless Communication Networks for Effective Performance Based on Traffic Indicators</i>	89

CONTRIBUTOR'S INSTRUCTIONS

1. Aim and scope

The prime aim is to consider for peer review and eventually publish if considered worthwhile, research/review outcomes significantly advancing fundamental understanding in scientific and technological phenomena and focusing on the interconnection of multiple topics. Works authored by both experienced and young scientists will be welcome in the following series:

Series A: Physical and Mathematical Sciences: Physics, Mathematics, Statistics, Geology, Geophysics, Environmental Sciences, Computer and Information Technology, Engineering and related branches.

Series B: Chemical and Biological/Agricultural Sciences: Chemistry, Biochemistry, Pharmacy, Medicine, Biology, Genetics, Fisheries, Agricultural related sciences and related branches.

2. Manuscript Submission

Submission of a manuscript shall imply that:

1. the work described has not been published before
2. it is not under consideration for publication anywhere else
3. its publication has been approved by all co-authors, if any, as well as by the responsible authorities – tacitly or explicitly – at the institute where the work has been carried out.
4. the publisher will not be held legally responsible should there be any claims for compensation.

Permissions

Authors wishing to include figures, tables, or text passages that have already been published elsewhere will be required to obtain permission from the copyright owner(s) for both the print and online format and to include evidence that such permission has been granted when submitting their papers. Any material received without such evidence or without proper referencing will be assumed to originate from the authors.

N/B: Proper referencing of imported materials such as figures, tables, or text passages of already published work will be acceptable

Online Submission

At the moment, REJOST accepts submission through e-mail address (rejost21@gmail.com) pending the regularization of the online platform submission system, which the potential authors will be notified soon.

Title Page

The **template title page** must provide the following information.

- The name(s) of the author(s)
- A concise and informative title
- The affiliation(s) of the author(s), i.e. institution, (department), city, (state), country
- A clear indication and an active e-mail address of the corresponding author

If address information is provided with the affiliation(s) it will also be published. For authors that are (temporarily) unaffiliated, their private e-mail address and their city/country of residence shall be required.

Abstract

Abstract must have 150 to 250 words. The abstract should not contain any undefined abbreviations and no references shall be required.

Keywords

4 to 6 keywords are required for indexing purposes.

The body of the Manuscript should comprise the following sections

1. Introduction
 2. Materials and Methods
 3. Results and Discussion
 4. Conclusions
 5. Acknowledgements
- References

Declarations

All manuscripts shall contain the following sections under the heading 'Declarations'. Any of the sections, which are not relevant to a manuscript, shall be written 'Not applicable'

Funding

Information that explains whether and by whom the research was supported shall be included

Conflicts of interest/Competing interests (include appropriate disclosures) will be needed

Text Formatting

Manuscripts should be submitted in MS Word.

Authors should:

- use a normal, plain font (e.g., 12-point Times Roman) for text
- use of italics for emphasis.
- use the automatic page numbering function to number the pages.
- not use field functions.
- use tab stops or other commands for indents, not the space bar.
- use the table function, not spreadsheets, to make tables.
- use the equation editor or Math Type for equations.
- save their file in document format (Word 2007 or higher) versions

Headings

Authors should:

Please use not more than three levels of displayed headings.

Abbreviations

Abbreviations should be defined at first mention and used consistently thereafter.

Footnotes

Footnotes may be used to give additional information, which will include the citation of a reference included in the reference list. They should not consist solely of a reference citation, and they should never include the bibliographic details of a reference. They should also not contain any figures or tables. Footnotes to the text shall be numbered consecutively; those to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data). Footnotes to the title or the authors of the article shall not be given reference symbols. Footnotes should be used instead of endnotes.

Acknowledgments

Acknowledgments of people, grants, funds, etc. should be placed in a separate section on the title page. The names of funding organizations shall be written in full if any.

Additional Instruction Text Formatting

- Use continuous line numbering.

References***Citation***

The APA style of referencing should be adopted. Authors shall cite references in the text by name and year in parentheses. Some examples:

- Negotiation research spans many disciplines (Thompson 1990).
- This result was later contradicted by Becker and Seligman (1996).
- This effect has been widely studied (Abbott 1991; Barakat et al. 1995a, b; Kelso and Smith 1998; Medvec et al. 1999, 2000).

Reference list

The list of references should only include works that are cited in the text and that have been published or accepted for publication. Personal communications and unpublished works should only be mentioned in the text. Do not use footnotes or endnotes as a substitute for a reference list.

Reference list entries should be alphabetized by the last names of the first author of each work. Order multi-author publications of the same first author alphabetically with respect to second, third, etc. author. Publications of exactly the same author(s) must be ordered chronologically.

- Journal article
Gamelin FX, Baquet G, Berthoin S, Thevenet D, Nourry C, Nottin S, Bosquet L (2009) Effect of high intensity intermittent training on heart rate variability in prepubescent children. *Eur J Appl Physiol* 105:731-738. <https://doi.org/10.1007/s00421-008-0955-8>

Ideally, the names of all authors should be provided, and the use of “et al” in long author lists will not be accepted in the reference list.

- Article by DOI
Slifka MK, Whitton JL (2000): Clinical implications of dysregulated cytokine production. *J Mol Med*. <https://doi.org/10.1007/s001090000086>
- Book
South J, Blass B (2001): The future of modern genomics. Blackwell, London
- Book chapter
Brown B, Aaron M (2001): The politics of nature. In: Smith J (ed.) The rise of modern genomics, 3rd ed. Wiley, New York, pp. 230-257
- Online document

Cartwright J. (2007): Big stars have weather too. IOP Publishing Physics Web. <http://physicsweb.org/articles/news/11/6/16/1>. Accessed 26 June 2007

- Dissertation

Akpan J. W. (2019): Experimental acute renal failure. Dissertation, Akwa Ibom State University

Always use the standard abbreviation of a journal's name according to the International Standard serial number (ISSN) List of Title Word Abbreviations.

Tables

- All tables are to be numbered using Arabic numerals.
- Tables should always be cited in text in consecutive numerical order.
- For each table, authors shall supply a table caption (title) explaining the components of the table.
- Identify any previously published material by giving the original source in the form of a reference at the end of the table caption.
- Footnotes to tables should be indicated by superscript lower-case letters (or asterisks for significance of values and other statistical data) and included beneath the table body.
- Tables shall not carry vertical lines
- Avoid repetitions of information or components of Tables in the Discussion of Results

Artwork

For the best quality final product, it will be highly recommended that authors submit all of their artwork-photographs, line drawings, etc. -in an electronic format. The art will then be produced to the highest standards with the greatest accuracy to detail. The published work will directly reflect the quality of the artwork provided.

Electronic Figure Submission

Author(s) shall

- Supply all figures electronically.
- Indicate what graphics program was used to create the artwork.
- For vector graphics, the preferred format is EPS; for halftones, please use TIFF format. MS Office files are also acceptable.
- Vector graphics containing fonts must have the fonts embedded in the files.
- Name your figure files with "Fig" and the figure number, e.g., Fig1.eps.

Figure Numbering

- All figures are to be numbered using Arabic numerals.
- Figures should always be cited in text in consecutive numerical order.
- Figure parts should be denoted by lowercase letters (a, b, c, etc.).
- If an appendix appears in your article and it contains one or more figures, continue the consecutive numbering of the main text. Do not number the appendix figures, "A1, A2, A3, etc." Figures in online appendices (Electronic Supplementary Material) should, however, be numbered separately.

Figure Captions

- Each figure should have a concise caption describing accurately what the figure depicts. Include the captions in the text file of the manuscript, not in the figure file.
- Figure captions begin with the term **Fig** in bold type, followed by the figure number, also in bold type.
- No punctuation is to be included after the number, nor is any punctuation to be placed at the end of the caption.

- Identify all elements found in the figure in the figure caption; and use boxes, circles, etc., as coordinate points in graphs.
- Identify previously published material by giving the original source in the form of a reference citation at the end of the figure caption.
-

POST ACCEPTANCE EXERCISE

GALLEY PROOF: The author(s) shall be given galley proof(s) of their revised manuscript(s) before final publication in the journal

ARTICLE PROCESSING FEES: Upon acceptance, author(s) shall be required to pay the sum of **twenty five thousand naira (₦25, 000)** only, which covers the processing fees, one soft copy of author's article and one hard copy of the entire issue.

ADDITIONAL INFORMATION

For submission of manuscripts, subscription, order and inquiries refer to

Editor-in-chief

Researchers Journal of science and technology (REJOST)
Faculty of Physical sciences
Akwa Ibom State University
P.M.B. 1167, Uyo, Nigeria
Emails: nyaknogeorge@aksu.edu.ng; rejost21@gmail.com