Taiwo Olakunle Roy-Layinde

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PERSONAL PROFILE

I am a resourceful early-career scientist with over thirteen (13) years of teaching, research, and industrial experience. My field of study is Theoretical Physics, and I am presently involved in research on Statistical and Nonlinear Physics, where I have collaborated and made contributions to nonlinear dynamics, particularly in industrially relevant studies on vibrational resonances in physical systems such as plasma, bubble, electronic circuit models, biological systems, and variable mass oscillators. I have worked as a field engineer in a telecommunications servicing company, with outstanding success in key performance indices. My research has direct industrial implications and has given me more scientific knowledge that would help me better contribute to field operations activities and overall industry growth. I am enthusiastic about contributing to goal-driven institutions and mentoring young and aspiring engineers and scientists.

RESEARCH PROFILE

- Field: Theoretical Physics
- Research Area: Statistical and Nonlinear Physics
- Research Interests:
  - Nonlinear Dynamics, Chaos and Complexities, Turbulence
  - Nonlinear Resonances, Vibrational Resonance
  - Bubble Oscillation
  - Statistical physics, Nonlinear Time Series Analysis
  - Fractional-Order Systems
  - Vibrational Energy Harvesting and Renewable Energy
  - Integration and application of energy-efficient devices.
- Researcher ID:
  - **Google Scholar:** https://scholar.google.com/citations?user=i31LzjcAAAAJ&hl=en&oi=ao
  - **ORCID:** https://orcid.org/0000-0001-5285-7231
  - **Scopus Author ID:** 57191381371 (H-index - 8)
  - **African Research Nexus:** https://research-nexus.net/author/1001671755/

EDUCATION AND TRAINING

- **The University of Ibadan, Nigeria:** **(May 2011 – July 2019)**
  - Physics **(PhD)**

Relevant Modules: Doctoral Development programs

Thesis: *Analysis of Vibrational Resonance in Systems with Nonlinear Damping:*

The primary objective of this research is to analyse vibrational resonance (VR) in systems with nonlinear damping. The VR was examined in two bi-harmonically driven dimensionless models: The plasma oscillation model with double well potential and quadratic damping, and the unidirectional particle model with periodic potential and state-dependent periodic damping. This involved the analysis using perturbation technique and the numerical computation of the response amplitude which characterizes VR. Overall, vibrational resonance was observed in both systems with nonlinear damping playing inductive and contributory roles. Numerical results were in good agreement with the analytical results.

- **The University of Ibadan, Nigeria:** **(Dec. 2008 – Sept. 2010)**

  - Physics **(M.Sc.)**

Relevant Modules: Electromagnetic Theory, Quantum Theory, Numerical and Computational Methods, Mathematical Methods, Analysis of Data, Health and Nuclear Physics, Nuclear Applications, Applied Electronics and Workshop Practices, Basic Fluid Dynamics, Non-ionising radiation.

Dissertation: *Synchronization of Coupled Anharmonic plasmas:*

The objective of this study was to produce chaotic synchronization of linearly coupled identical dissipative plasma systems. Numerical simulations, including Poincaré sections, time series analysis, and bifurcation diagram were performed using the Fourth-order Runge-Kutta scheme. The time dependence of average error for different coupling strengths K was computed. The numerical value of the threshold coupling was determined. The system showed plasma oscillations have interesting dynamics, including stable periodic orbits emerging from new fixed points generated by period-doubling bifurcation.

- **Lagos State University, Nigeria** **(June 2002 – Aug. 2007)**

  - Physics **(B.Sc., Second Class Honours (Upper Division))**

Project: *A Review of Path Integral Formulation and its Application to Two Quantum Systems:*

The primary objective of this project was to review the path integral formulation of quantum mechanics and show that it is consistent with other formulations of quantum mechanics. The formulation was applied to two quantum systems; the free particle and the simple harmonic oscillators, and results were consistent with the literature, showing that the path integral formulation produced the same dynamics for each system as the other formulations of quantum mechanics.

- **Abeokuta Grammar School, Abeokuta, Nigeria** **(1994 – 1999)**

  - West African Senior School Certificate (WASSC)

CURRENT WORK EXPERIENCE (WITHIN THE UNIVERSITY SYSTEM)

➢ Olabisi Onabanjo University, Nigeria

- **Lecturer I** **(Oct. 2022 – Till Date)**
  - Taught undergraduate courses every semester (E.g. Analytical Mechanics I, Vibration and Waves, Electronic Devices, Mathematical Physics, Electrodynamics, Quantum Mechanics).
  - Set and marked exam questions and compiled examination results every semester.
  - Co-taught postgraduate courses and marked seminar reports.
  - Supervised undergraduate projects and marked seminar reports.

- **Lecturer II** **(July 2019 – Oct. 2022)**
    - Taught undergraduate courses every semester (E.g. Analytical Mechanics I, Vibration and Waves, Electronic Devices, Mathematical Physics, Electrodynamics, Quantum Mechanics).
    - Set and marked exam questions and compiled examination results every semester.
    - Supervised undergraduate projects and marked seminar reports.

- ***Assistant Lecturer*** **(March 2014 – July 2019)**
    - Assisted professors/senior lecturers in teaching undergraduate modules Analytical Mechanics and Vibrations and Waves
    - Assisted senior lecturers in the marking and grading of students' exams.
    - Participated in the invigilation of semester exams and result compilations.
    - Participated in the organisation of seminar presentations and workshops for undergraduate students.

PREVIOUS WORK EXPERIENCE (OUTSIDE THE UNIVERSITY SYSTEM)

➢ *Helios Towers Nigeria (HTN),*

- ***Engineer Operations*** **(July 2011 – March 2014)**
    - *Ensure 100% uptime and minimize the effects of power outages on sites.*
    - *Perform preventive and routine maintenance on diesel engine generators.*
    - *Serve as a bridge between the company and power system distributors.*
    - *Ensure low operational costs for site maintenance.*
    - Escalate unresolved faults to Second Level Support.

➢ *Federal Government College, KANO (NYSC)*

- ***Subject Teacher*** **(Oct. 2007 – Sept. 2008)**
    - *Teacher core subjects, including Mathematics and Physics.*
    - *Plan and prepare lessons in line with the subject schemes of work.*
    - *Examine and monitor students' progress for effective feedback.*
    - *Attend National Youth Service Corps (NYSC) designated activities.*

DETAILS OF PROFESSIONAL EXPERIENCE AT OLABISI ONABANJO UNIVERSITY

➢ *Teaching Functions*

- ***Undergraduate Program***
    - Teaching, experimental demonstrations and Assessment of undergraduate courses.

      Courses taught include:
        - Vibrations and Waves
        - Electronic Devices

        - Mathematical Methods in Physics
        - Quantum Mechanics
        - Analytical Mechanics
        - Electrodynamics
    - Supervision of Final-year Independent Research Project
    - Collaborative development of teaching aids and methods in undergraduate courses.
    - Curriculum development

- ***Postgraduate Program***
    - Teaching and assessment of postgraduate diploma courses.
    - Teaching assistant for Master's degree courses.
    - Co-supervision of M.Sc. students in Nonlinear Dynamics
    - Postgraduate Student Coordinator, Nonlinear Dynamics Research group.

➢ ***Administrative Functions***

- *Departmental Examination Officer* *2016 – 2020*
- *Coordinator, Departmental Undergraduate Seminar* *2022 – 2023*
- *Students' Coordinator/Adviser* *2013 – 2016, 2022 – 2025*
- *Member, Departmental Quality Assurance Committee* *2020 – 2023*
- *Chairman, Departmental Quality Assurance Committee* *2023 – 2025*
- *Member, Faculty of Science Quality Assurance Committee* *2023 – 2025*
- *Member, Departmental Backlog Results Computation Committee* *2023 – 2025*
- *Member, Departmental Curriculum Development Committee* *2022 – 2025*
- *Coordinator, Continuous Education Studies* *2023 – 2025*
- *Secretary, Departmental Appraisal Committee* *2024*
- *Secretary, HND Conversion Curriculum Development Committee* *2024*

AWARDS/FELLOWSHIPS

- Award for Publication of Articles from Ph.D. Thesis, The Postgraduate College, University of Ibadan, Nigeria (2019).
- CEO's Award, Outstanding Engineer-Southwest. Helios Towers Nigeria (2013)
- Best graduating M.Sc. Student (Results), Department of Physics, University of Ibadan, Nigeria (2010).
- Best Graduating Student (Results), Department of Physics, Lagos State University, Nigeria (2007).

PROFESSIONAL ACTIVITIES/MEMBERSHIP

- Nigerian Society of Physical Sciences (Membership Number: 51498292)
- Reviewer, LASU Journal of Research and Review in Science.
- Reviewer, African Journal of Science and Nature

LEADERSHIP EXPERIENCE

- ***Chairman, Departmental Quality Assurance Committee (2023 – 2024)*** – Having served as a member of the department quality assurance committee between 2020 and 2023, I was appointed the chairman of the same committee in 2023. The committee is the departmental arm of the University's Quality Assurance Committee. The committee collates weekly reports on class activities, lectures and practicals. The committee also monitors the conduct of examinations, the state of university facilities, and student activities. As the chairman, I allocate responsibilities to other members and perform oversight functions that aid the committee's capacity.
- ***Guest Lecturer, 2024 Choir Anniversary Seminar "Self-Development and Career Building", St. John's Parish Anglican Church, Ijebu-Itele (17th August 2024)*** – I was happy to share personal experiences with the christian community members in Itele, Ogun State, Nigeria. The audience cuts across a wide age spectrum, including some students. I educated the audience on factors influencing self-development, career choices, and the role of motivation and time management.
- ***Guest Lecturer, 2023 Science Day "Technology in Security ",*** **Sacred Heart Catholic College, Ijebu-Ode** ***(25th October 2023)*** – I was privileged to be the guest speaker at the Science Day of a secondary school in a community close to Olabisi Onabanjo University. The Science Day features student representatives of many secondary schools in Ogun State. The students showcased many electronic projects in line with the day's theme. My lecture centres on the role of science and technology in modern security architectures. The students were enlightened on the roles of security technologies such as drones, lasers, radar, sonar, artificial intelligence, remote sensors and robotics. Students' participation was encouraging.
- ***Departmental Examination Officer, DEO (2016 – 2020)*** – This is an administrative role within the department. In this role, I interfaced with the Head of Department on examination matters and student performance. I coordinated all undergraduate examination activities within the department. I was tasked with keeping all examination materials and supplying same to examination venues. A major function of the DEO is record-keeping. I kept all examination-related records within the department including timetables, graded scripts, results, and evidence of irregularities.
- ***Class Representative (2003 – 2007)*** – I liaised with course lecturers and provided effective student representation in departmental activities through prompt dissemination of information, communication, and coordination. While fulfilling this role, I was elected member of the Student Representative Council, a student body that liaises between the students, academic leaders and the Students' Association.

TECHNICAL SKILLS

❖ ***Software Skills***

- Microsoft Office tools (Microsoft Word, PowerPoint, Excel, Outlook, Visio).

- Simulation/Programming Tools (MATLAB, Mathematica, TISEAN, Gnuplot).

❖ ***Research Skills***

- Research methodology.
- Arts of Scientific Writing
- Manuscript preparation, Review and Editing.

❖ ***Teaching Skills***

- Moodle
- English Language proficiency.

❖ ***Problem-solving Skills***

- time-management,
- resourcefulness
- teamwork
- leadership, and
- creativity.

JOURNAL/CONFERENCE PUBLICATIONS

1. Omoteso, K. A., Marjani, R., Ozioko, O., Bagdasar, O., **Roy-Layinde, T. O.**, and Diala, U. H. (2025). A study of the response dynamics of a Helmholtz Resonator and its application in acoustic energy harvesting. *Results in Engineering*, **27**: 106470. **DOI**: 10.1016/j.rineng.2025.106470. [Publisher & Owner: Elsevier B.V., United Kingdom]. https://doi.org/10.1016/j.rineng.2025.106470
2. **Roy-Layinde, T. O.**, Omoteso, K. A., Laoye, J. A., and Diala, U. H. (2025). Vibrational Resonance in Nonlinear Vibration Isolation Systems. *Mechanics Research Communications,* **148**: 104470–(1–9). **DOI**: 10.1016/j.mechrescom.2025.104470. [Publisher & Owner: Elsevier Ltd., United Kingdom]. https://doi.org/ DOI: 0.1016/j.mechrescom.2025.104470
3. **Roy-Layinde, T. O**., Olonade, K. O., Omoteso, K. A., Oyero, B. A., Oladunjoye, H. T., and Laoye, J. A. (2025). Exploring Vibrational Resonance in a Biophysical System with Fractional-order Damping. *Journal of the Nigerian Society of Physical Sciences*, **7**: 2594. **DOI:** 10.46481/jnsps.2025.2594 [Publisher & Owner: Nigerian Society of Physical Sciences, Nigeria]. https://doi.org/ DOI: 10.46481/jnsps.2025.2594
4. Adesina, P. O., Vincent, U. E., **Roy-Layinde, T. O.**, Kolebaje, O. T., Popoola, O. O., and McClintock, P. V. E. (2025). Suppression and enhancement of vibrational resonance by time-periodic phase-modulation in a driven gyroscope. *Physical Review E*, **111**(5): 054203. **DOI:** 10.1103/PhysRevE.111.054203 [Publisher & Owner: American Physical Society, United States]. https://doi.org/ DOI: 10.1103/PhysRevE.111.054203
5. Omoteso, K. A., **Roy-Layinde, T. O.**, and Diala, U. H. (2025). Performance boost of an electromagnetic energy harvester using vibrational resonance. *International Journal of Non-Linear Mechanics,* **170**: 104989. **DOI:** 10.1016/j.ijnonlinmec.2024.104989 [Publisher & Owner: Elsevier Ltd., United Kingdom]. https://doi.org/10.1016/j.ijnonlinmec.2024.104989
6. Omoteso, K. A., Ozioko, O., Bagdasar, O., **Roy-Layinde, T. O.**, and Diala, U. H. (2024). Numerical analyses of acoustic vibrational resonance in a Helmholtz resonator. *Nonlinear Dynamics*, **113**: 1-21. **DOI:** 10.1007/s11071-024-10534-w [Publisher & Owner: Springer Netherlands, Netherlands] https://doi.org/10.1007/s11071-024-10534-w

7. Olonade, K. O., **Roy-Layinde, T. O.**, Oyero, B. A., Omoteso, K. A., Odunaike, R. K., and Laoye, J. A. (2024). Analysis of vibrational resonance in a Biophysical System. *Nigerian Journal of Physics*, **33**(3): 75–85. **DOI:** 10.62292/njp.v33i3.2024 [Publisher & Owner: Nigerian Institute of Physics, Nigeria]. https://doi.org/10.62292/njp.v33i3.2024.268
8. Adesina, P. O., Vincent, U. E., **Roy-Layinde, T. O.**, Kolebaje, O. T., and McClintock, P. V. E. (2024). Crisis-induced vibrational resonance in a phase-modulated periodic structure. *Physical Review E*, **110**(3): 034215. **DOI:** 10.1103/PhysRevE.110.034215 [Publisher & Owner: American Physical Society, United States]. https://doi.org/10.1103/PhysRevE.110.034215
9. Saheed, R. A., **Roy-Layinde, T. O.**, Laoye, A. J., and Aliu, H. O. (2024). First-Principles Study of Electronic and Elastic Properties of Taenite NiFe Alloy. *Solid State Communications*, **382**: 115466. **DOI:** 10.1016/j.ssc.2024.115466 [Publisher & Owner: Elsevier Ltd., United Kingdom]. https://doi.org/10.1016/j.ssc.2024.115466
10. **Roy-Layinde, T. O.**, Omoteso, K. A., Diala, U. H., Runsewe, J. A., and Laoye, J. A. (2024). Analysis of Vibrational Resonance in an Oscillator with Exponential Mass Variation. *Chaos, Solitons & Fractals*, **178**: 114310. **DOI:** 10.1016/j.chaos.2023.114310. [Publisher & Owner: Elsevier Ltd., United Kingdom]. https://doi.org/10.1016/j.chaos.2023.114310
11. **Roy-Layinde, T. O.**, Omoteso, K. A., Kolebaje, O. T., Ogunmefun, F. O., Fasasi, R. A., Laoye, J. A., and Vincent, U. E. (2023). Vibrational resonance in a multistable system with position-dependent mass. *Communications in Theoretical Physics*, **75**(11): 115602. **DOI:** 10.1088/1572-9494/acf20e. [Publisher: IOP Publishing Ltd., United Kingdom; Owner: Institute of Theoretical Physics CAS, Chinese Physical Society and IOP Publishing, United Kingdom]. https://dx.doi.org/10.1088/1572-9494/acf20e
12. Omoteso, K. A., **Roy-Layinde, T. O.**, Laoye, J. A., Vincent, U. E., and McClintock, P. V. E. (2022). Delay-induced Vibrational Resonance in the Rayleigh-Plesset Bubble Oscillator. *Journal of Physics A: Mathematical and Theoretical*, **55**: 495701. **DOI:** 10.1088/1751-8121/aca7e3. [Publisher: IOP Publishing Ltd., United Kingdom; Owner: Institute of Physics, United Kingdom]. https://dx.doi.org/10.1088/1751-8121/aca7e3
13. Falayi, E. O., Amaechi, P. O., Adewole, A. T., **Roy-Layinde, T. O.**, Ogunsanwo, F. O., and Alomaja, A. J. (2022). Nonlinear Time Series Analysis of Ionospheric Electric Current Disturbance Associated with Geomagnetic Storm. *Advances in Space Research*, **69**(12): 4307–4318. **DOI:** 10.1016/j.asr.2022.03.024. [Publisher & Owner: Elsevier B. V., United Kingdom]. https://doi.org/10.1016/j.asr.2022.03.024
14. **Roy-Layinde, T. O.**, Omoteso, K. A., Oyero, B. A., Laoye, J. A., and Vincent, U. E. (2022). Vibrational Resonance of Ammonia Molecule with Doubly Singular Position-Dependent Mass. The European Physical Journal B, **95**: 80. **DOI:** 10.1140/epjb/s10051-022-00342-9. [Publisher & Owner: Springer New York, Germany]. https://doi.org/10.1140/epjb/s10051-022-00342-9
15. Falayi, E. O., Adepitan, J. O., Adewole, A. T., and **Roy-Layinde, T. O.** (2022). Analysis of Rainfall Data of Some West African Countries using Wavelet Transform and Nonlinear Time Series Techniques. *Journal of Spatial Science*, **68**(3) 1–12. **DOI:** 10.1080/14498596.2021.2008539 [Publisher & Owner: Taylor & Francis Group, United Kingdom]. https://doi.org/10.1080/14498596.2021.2008539
16. Falayi, E. O., Ajose, A. S., **Roy-Layinde, T. O.**, and Adewole, A. T. (2021). Analyzing the Variation of Lyapunov Exponents of the Time Derivatives of the Horizontal Geomagnetic Field during the Geomagnetic Storm. *Geomagnetism and Aeronomy*, **61**(8): 1221–1233. **DOI:** 10.1134/S0016793221080065 [Publisher & Owner: Pleiades Publishing, Russian Federation].

https://doi.org/10.1134/S0016793221080065
17. Laoye, J. A., Adelaja, A. D., **Roy-Layinde, T. O**., and Odunaike, R. K. (2021). Circuit Realization, Active Back-Stepping Synchronization of Sprott I System and Application to Secure Communication. *FUW Trends in Science and Technology Journal,* **6**(2): 482–489. [Publisher & Owner: Federal University Wukari, Nigeria]. http://www.ftstjournal.com/Digital%20Library/62%20Article%2026.php
18. Adelaja, A. D., Laoye, J. A., **Roy-Layinde, T. O**., and Odunaike, R. K. (2021). Experimental Realization and Active Backstepping Synchronization of Chaotic System with Line of Equilibrium and its Application to Secure Communication. *Nigerian Journal of Physics,* **30**(1): 183–193. [Publisher & Owner: Nigerian Institute of Physics, Nigeria].
19. **Roy-Layinde, T. O.**, Vincent, U. E., Abolade, S. A., Popoola, O. O., Laoye, J. A., and McClintock, P. V. E. (2021). Vibrational Resonances in Driven Oscillators with Position-Dependent Mass. *Philosophical Transactions of the Royal Society of London A*, **379**(2192): 20200227. **DOI:** 10.1098/rsta.2020.0227 [Publisher & Owner: The Royal Society, United Kingdom]. https://doi.org/10.1098/rsta.2020.0227
20. Omoteso, K. A., **Roy-Layinde, T. O**., Laoye, J. A., Vincent, U. E., and McClintock, P. V. E. (2021). Acoustic Vibrational Resonance in a Rayleigh-Plesset Bubble Oscillator. *Ultrasonics Sonochemistry*, **70**: 105346. **DOI:** 10.1016/j.ultsonch.2020.105346 [Publisher & Owner: Elsevier B. V., Netherlands]. https://doi.org/10.1016/j.ultsonch.2020.105346
21. Adewole, A. T., Falayi, E. O., **Roy-Layinde, T. O.**, and Adelaja, A. D. (2020). Chaotic Time Series Analysis of Meteorological Parameters in some Selected Stations in Nigeria. *Scientific African*, **10**: e00617–(1–21). **DOI:** 10.1016/j.sciaf.2020.e00617 [Publisher: Elsevier B.V., Netherlands; Owner: African Institute of Mathematical Sciences/Next Einstein Initiative, South Africa]. https://doi.org/10.1016/j.sciaf.2020.e00617
22. Falayi, E. O., Ajose, A. S., **Roy-Layinde, T. O.**, Adewole, A. T., and Adepitan, J. O. (2020). Evaluating Solar Quiet Variation of the Horizontal Geomagnetic Field using Nonlinear Time Series Analysis Techniques. *Geomagnetism and Aeronomy*, **60**(5): 661–671. **DOI:** 10.1134/S0016793220050060 [Publisher & Owner: Pleiades Publishing, Russian Federation]. https://doi.org/10.1134/S0016793220050060
23. **Roy-Layinde, T. O.**, Omoteso, K. A., Ogooluwa, D. O., Oladunjoye, H. T., and Laoye, J. A. (2020). Chaotic and Periodic Behavior in a Fractional-Order Biological System. *Acta Physica Polonica B*, **51**(9): 1885–1904. **DOI:** 10.5506/APhysPolB.51.1885 [Publisher & Owner: Jagiellonian University Press, Poland]. https://www.actaphys.uj.edu.pl/R/51/9/1885/pdf
24. Falayi, E. O., Adewole, A. T., Adelaja, A. D., and **Roy-Layinde, T. O.** (2020). Wavelet Spectrum Analysis of Air Temperature and Relative Humidity in some Selected Stations in Nigeria. *Dutse Journal of Pure and Applied Sciences*, **6**(1): 47–59. ISSN (Online): 2635–3490. [Publisher & Owner: Federal University Dutse, Nigeria]. https://fud.edu.ng/journals/dujopas/2020_March_Vol_6_No_1/21.pdf
25. Falayi, E. O., Adewole, A. T., Adelaja, A. D., Ogundile, O. O., and **Roy-Layinde, T. O.** (2020). Study of Nonlinear Time Series and Wavelet Power Spectrum Analysis using Solar Wind Parameters and Geomagnetic Indices. *NRIAG Journal of Astronomy and Geophysics*, **9**(1): 226–237. **DOI:** 10.1080/20909977.2020.1728866 [Publisher: Taylor & Francis Group, United Kingdom; Owner: National Research Institute of Astronomy and Geophysics, Egypt]. https://doi.org/10.1080/20909977.2020.1728866
26. Laoye, J. A., **Roy-Layinde**, **T. O.,** Omoteso, K. A., Popoola, O. O. and Vincent, U. E. (2019) Vibrational Resonance in a Higher Order Nonlinear Damped Oscillator with Rough Potential.

Pramana – Journal of Physics, **93**(6): 102. **DOI:** 10.1007/s12043-019-1865-5 [Publisher: Springer India, India; Owner: Indian Academy of Sciences, India]. https://doi.org/10.1007/s12043-019-1865-5

27. Laoye, J. A., Omoteso, K. A., **Roy-Layinde, T. O**., Oguntayo, F. O. and Odunaike, R. K. (2018). Effect of Rough Potential on Vibrational Resonance of Bistable System. *Nigerian Journal of Physics,* **27**(1): 100–110. [Publisher & Owner: Nigerian Institute of Physics, Nigeria].
28. Usman, M. A., Hammed, F. A., Olayiwola M. O., Ogunsan, B. T., Solanke, O. O., Okusaga, S. T. and **Roy-Layinde**, **T. O.** (2018). Effect of Damping Coefficients on Euler-Bernoulli Beam Subjected to Partially Distributed Load. *Transactions of the Nigerian Association of Mathematical Physics,* **7**: 33–40. [Publisher & Owner: Nigerian Association of Mathematical Physics, Nigeria].
29. Laoye**,** J. A., **Roy-Layinde, T. O.,** Omoteso, K. A. and Odunaike, R. K. (2018). Numerical Investigation of Signal Amplification via Vibrational Resonance in Chua's Circuit. *African Journal of Science and Nature (AJSN)*, **6**: 14–25. **DOI:** 10.46881/ajsn.v6i0.138 [Publisher & Owner: Olabisi Onabanjo University, Nigeria]. https://doi.org/10.46881/ajsn.v6i0.138
30. Talabi, A. T., **Roy-Layinde, T. O.,** Odunaike, R. K., Oladunjoye, H. T. and Adebanjo, A. O. (2018). Geophysical Investigation of Groundwater Pollution Resulting from Leachate Flow at Ikoto and Oru Dumpsites in Ogun State of Nigeria. *African Journal of Science and Nature (AJSN)*, **6**: 1–13. **DOI:**10.46881/ajsn.v6i0.137. [Publisher & Owner: Olabisi Onabanjo University, Nigeria]. https://doi.org/10.46881/ajsn.v6i0.137
31. Vincent, U. E., **Roy-Layinde**, **T. O.,** Popoola, O. O., Adesina P. O. and McClintock, P. V. E. (2018). Vibrational Resonance in an Oscillator with an Asymmetrical Deformable Potential. *Physical Review E,* **98**(6): 062203. **DOI:** 10.1103/PhysRevE.98.062203. [Publisher & Owner: American Physical Society, United States]. https://doi.org/10.1103/PhysRevE.98.062203
32. **Roy-Layinde**, **T. O.,** Laoye, J. A., Popoola, O. O., Vincent, U. E. and McClintock, P. V. E. (2017). Vibrational Resonance in an Inhomogeneous Medium with Periodic Dissipation. *Physical Review E*, **96**(3): 032209. **DOI:** 10.1103/PhysRevE.96.032209. [Publisher & Owner: American Physical Society, United States]. https://doi.org/10.1103/PhysRevE.96.032209
33. **Roy-Layinde**, **T. O.,** Laoye, J. A., Popoola, O. O. and Vincent, U. E. (2016). Analysis of Vibrational Resonance in Bi-harmonically Driven Plasma. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, **26**(9): 093117. **DOI:** 10.1063/1.4962403. [Publisher: AIP Publishing, United States; Owner: American Institute of Physics, United States]. https://doi.org/10.1063/1.4962403
34. Oladunjoye, H. T., Laoye, J. A. and **Roy-Layinde, T. O.** (2015). Application of Electrical Resistivity Method in Detecting Self-Buried Archaeological Materials. *Ilorin Journal of Science*, **2** (1): 231–240. **DOI:** 10.54908/iljs.2015.02.01.017. [Publisher & Owner: University of Ilorin, Nigeria]. https://iljs.org.ng/index.php/iljs/article/view/90

SUBMITTED/COMPLETED/ONGOING RESEARCH

- Omoteso, K. A., **Roy-Layinde, T. O.**, O. Bagdasar, and Diala, U. H. Analysis of vibrational resonance in a nonlinear system with softening and hardening stiffness behaviours [Status: **Under Revision** (*Alexandria Engineering Journal*, Ms. Ref. No.: AEJ-D-25-02980)]
- Muhammad, S., Ogabi, C. O., Idowu, B. A., Kolebaje, O. T., **Roy-Layinde, T. O.**, and Vincent, U. E. Cascaded Vibrational Resonance in a Duffing Oscillator. [Status: **Completed**/Awaiting Submission]

CONFERENCES AND OTHER PUBLIC ENGAGEMENT ACTIVITIES

- The NIP Lecture Series 3.0: Seeking a Tipping Point: The Story of a Single Idea. 20th December 2024.
- Statistical Physics of Complex Systems, The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy. 8th – 10th September 2021.
- National School on Matlab and Magnetic Data Analysis, Olabisi Onabanjo University, Ago-Iwoye, Nigeria. 11th– 15th November 2019.
- 1st International Conference of Faculty of Science: Energy and Healthy Environment for Sustainable Development, Olabisi Onabanjo University, Ago-Iwoye, Nigeria. 15th–19th May 2017.
- Workshop on Unlimited Scholarships, Fellowships, Pre-Doctoral and Post-Doctoral Sponsorship in German, Obafemi Awolowo University, Ile-Ife, Nigeria. 5th – 6th April 2017.
- 38th Annual Conference of Nigerian Institute of Physics: Physics and Telecommunications: Overcoming Security Challenges for Sustainable Development, Olabisi Onabanjo University. Nigeria. 5th – 9th October 2015.
- 25th Annual Colloquium and Conference of Nigerian Association of Mathematical Physics; Mathematical Sciences as a panacea to Security Challenges - The Nigeria Example. Olabisi Onabanjo University, Ago-Iwoye, Nigeria. 4th – 7th November 2014.
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Signature Date