

CONTACT INFORMATION

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EMPLOYMENT

- Lecturer II, Mountain Top University, Nigeria 2021-present
- Research Visit, Department of Mathematics, University of Florida, USA Aug-Dec. 2022
- Teaching Assistant, University of Ibadan, Nigeria 2018 -2020

EDUCATION

- Ph.D. in Mathematics, 2021, University of Ibadan, Ibadan, Nigeria
Thesis: Subharmonic Bifurcation in Malaria-Lassa Fever Co-infection Epidemic model with Optimal Control Application.
- M.Sc in Mathematics, 2015, University of Ibadan, Ibadan, Nigeria
Thesis: A Mathematical Modeling of Dracunculiasis Epidemic in Human Population
- B.Sc in Pure and Applied Mathematics, 2008, Ladoke Akintola University of Technology, Nigeria
Thesis: On the Formulation of K-Step Implicit Linear Multistep Methods

RESEARCH INTERESTS

General interests

Mathematical Epidemiology: Biostatistics, Infectious disease modelling, mathematical biology, neglected tropical disease modeling.

Applied mathematics: Computational Statistics, Applied dynamical system, optimal control theory, fixed point and optimization problems.

Principle interests

- Developing and using complex adaptive systems of coupled socio-economic factors, data analysis, human health (infectious diseases), agriculture (renewable resources), environmental (land-use) change, and human response to these external stimuli to understand the ecology of poverty and to assess pathways for lifting resource-challenged populations out of poverty traps. Using machine learning to infer poverty trap dynamics from ecological, epidemiological, and economic data sets.
- Mathematical modeling of infectious diseases. Applying deterministic, stochastic, network, and agent-based modeling techniques to investigate the epidemiology, population dynamics, immunology, and control of infectious diseases. Using evolutionary game theory approaches to assess the impact of human behavior (or choice. Model calibration, sensitivity analysis and applying control theory to evaluate optimal disease control and surveillance measures.
- Modeling the interplay between human behavior and infectious diseases. Applying evolutionary game theory approaches to assess the impact of human behavior and choice on disease transmission and control.

- Dynamical systems and bifurcation theory. Applying the theory of dynamical systems, applied nonlinear analysis and numerical methods to study extreme multistability involving the co-existence of an infinite number of attractors in coupled biological, chemical, and physical systems.

PEER-REVIEWED PUBLICATIONS

1. **Akindede Akano Onifade**, Jan Rychtar, Dewey Taylor. A Dynamic Game of Lymphatic Filariasis Prevention by Voluntary use of Insecticide treated nets. **Accepted** in Journal of Theoretical Biology (Elsevier Journal).
2. **Akindede Akano Onifade**, Isaiah Oluwafemi Ademola, Jan Rychtar, Dewey Taylor. Modelling the effects of testing for the multidrug-resistance malaria **Accepted** in Healthcare Analytics (Elsevier Journal)
3. **Akindede Akano Onifade**, Salihu Sabiu Musa, Paul Olalekan Odeniran, Isaiah Oluwafemi Ademola, Abudullahi Yusuf. Modelling the transmission dynamics of Onchocerca Volvulus with environmental factors and river discharges dependent parameters on blackfly breeding sides. **Accepted in** Scientific African (Elsevier Journal)
4. **Akindede Akano Onifade**, Mayowa M. Ojo. Assessing the impact of drug resistance and treatment on malaria transmission dynamics. **Accepted** in Modeling Earth Systems and Environment (Springer Journal).
5. Oke I. Idisi, Tajudeen T. Yusuf, Adeniyi Ebenezer, **Akindede A. Onifade**, Yakub T. Oyebo, Akinyemi T. Samuel, Lateef A. Kareem. A new compartmentalized epidemic model to analytically study the impact of awareness on the control mitigation of the monkeypox disease. Healthcare analytics, 4(2023). DOI: <https://doi.org/10.1016/j.health.2023.100267>
6. Odeniran, P.O., **Akindede Akano Onifade**, MacLeod, E.T., Ademola, I.O., Alderton, S., Welburn, S.C. *Mathematical Modelling and Control of African Animal Trypanosomosis with Interacting Populations in West Africa-Could biting flies be important in maintaining the disease endemicity?* PloS ONE 2020, 15(11):e0242435.
7. Odeniran P.O., **Akindede Akano Onifade**, Omolabi, K.F. *Financial Losses Estimation of African Animal Trypanosomosis in Nigeria: Field Reality-Based Model*. Tropical Animal Health and Production 2021, 53(1), Article number: 159.
8. Adewole, M.O., **Akindede Akano Onifade**, Abdullah, F.A., Kasali F., Ismail, A.I.M. *Modelling the Dynamics of COVID-19 in Nigeria*. International Journal of Applied and Computational Mathematics, 2021, 7(3).
9. Adewole, M.O., **Akindede Akano Onifade**, Ismail, A.I.M., Faniran, T., Abdullah, F.A. *Analysis of Transmission Dynamics of Cholera: An Optimal Control Strategy*. Journal of Applied Nonlinear Dynamics, 2022, 11(2), 387 – 400.
10. Obabiyi, O.S., **Akindede Akano Onifade**, *Global Stability Analysis for Lassa Fever Transmission Dynamics with Optimal Control Application*. International Journal of Applied Mathematics, 2018, 31(3), 457 – 482.
11. **Akindede Akano Onifade**, Obabiyi O.S. *Bifurcation of Subharmonic in Lassa Fever Epidemic Model*. Italian Journal of Pure and Applied Mathematics, 2021, (45), 130 – 144.
12. Akindede Adebayo Mebawondu, Paranjothi Pillay, Ojen K. Narain, **Akindede Akano Onifade**, Mathew O. Adewole. *Some Iterative Algorithms for Reich-Suzuki Nonexpansive Mapping and Related (α, k) -Cocoercive Mapping with Applications to a Fixed Point and Optimization Problems*. International Journal of Nonlinear Analysis and Application, 2022, 1 – 19.
13. Obabiyi, O. S and **Akindede Akano Onifade**. *Mathematical Model for Lassa Fever Transmission Dynamics with Variable Human and Reservoir Population*. International Journal of Differential Equations and Application (IJDEA) 2017, 16(1), 67 – 91.

14. Adewole, M.O. and **Akindede Akano Onifade**. *A Mathematical Model of Dracunculiasis Epidemic and Eradication*. IOSR, Journal of Mathematics 2013, 8(6), 48 – 56.
15. **Akindede Akano Onifade**, and Obabiyi, O.S. *Sub-harmonic Bifurcation in Malaria Epidemic Model*. International Journal of Mathematics and Computation 2019, 30(2), 86 – 104
16. **Akindede Akano Onifade**, and Ademola, I.O. *A Mathematical Model of Malaria Transmission Dynamics in Genetically Resistant and Susceptible Population*. Journal of the Nigeria Mathematical Society 2017, 36(3), 459 – 477.
17. Sangotola, A.O and **Akindede Akano Onifade**. *A Generalized SEIR Mathematical Model with Infectivity in Exposed Period*. Journal of the Nigerian Mathematical Society, 2019, 38(1), 45 – 54.
18. **Akindede Akano Onifade**, Hamadjam Abboubaka, Paul Olalekan Odeniran, Isaiah Oluwafemi Ademola, Ado Adamou Abba Ari. Assessing the Impact of Optima Control Measures of COVID-19 and malaria Co-morbidity: A dynamics Modelling Approach. **Submitted** to Heliyon Journal (Elsevier Journal).
19. Akindede Adebayo Mebawondu, F. Akutsah, **Akindede Akano Onifade**, P. Pillay, O. K. Narain. A Relax inertial Extrapolation Method for Solving a New Type of Generalized Split Feasibility Problems in Real Hilbert Spaces. **Submitted** to Demonstratio Mathematica.

GRANTS

- Vaccine Impact Modelling Consortium, Imperial College, London (Department of Infectious Disease Epidemiology). **Co-PI**, Bill & Melinda Gates Foundation, Gavi, and the vaccine Alliance with **sub-contract 0F67A510-318E-4C6C-A6DE-03939C987BAD of July 12 2023: \$73,000, 2023-2024**.
- University of Florida Research Support Grant. **PI**, ~\$6000, 2022.
- Assessing the Impact of Optima Control Measures of COVID-19 and malaria Co-morbidity: A dynamics Modelling Approach. **PI**, International Mathematical Union Simons Fellowship Program, **\$5,000, 2022**.
- Assessing the impact of drug resistance and treatment on malaria transmission dynamics. **PI**, European Mathematical Society-Simons Fellowship Program, ~ **\$3,000, 2022**.

CONFERENCE ATTENDED

- International Mathematical and Statistics Student Research Symposium Conference, Department of Mathematics and Applied Mathematics, Virginia Commonwealth University, United States of America, April 15, 2023.

PROFESSIONAL SERVICES

- Journal reviewer for: Journal of Biological Systems, Scientific African, PLoS ONE, Computational and Mathematical Methods in Medicine.
- External Examiner/Moderator for Honors Degree (Bachelor's Degree) Research Project at the University of the Western Cape, South Africa.

PROFESSIONAL SOCIETIES

- International Advisory Board for Mathematical and Statistics Student Research Symposium Conference, Department of Mathematics and Applied Mathematics, Virginia Commonwealth University, United States of America, 2023 – present
- Nigerian Society for Mathematical Biology, Member, 2020 – present.
- Nigerian Mathematical Society, Member, 2015 – present

PROFESSIONAL APPOINTMENT

2021-Present: Chairman, Lectures and Examinations Timetable of the University (Mountain Top University)

REFERENCES

Prof. I. O. Ademola
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