

**Hammed Olawale Fatoyinbo**  
EpiCentre – School of Veterinary Science  
Massey University  
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## Education

- **Massey University, Manawatū, New Zealand** March 2021  
*Ph.D. Mathematics*
- **African Institute for Mathematical Sciences, Ghana** June 2014  
*M.Sc. Mathematical Sciences*
- **Federal University of Technology, Akure, Nigeria** November 2012  
*B.Tech. Industrial Mathematics*
- **The Federal Polytechnic, Ede, Nigeria** January 2008  
*Diploma Statistics*

## Employment

- **Postdoctoral Fellow** May 2022 – Present  
*EpiCentre – School of Veterinary Science, Massey University*
- **Postdoctoral Fellow** June 2021 – May 2022  
*School of Mathematical and Computational Sciences, Massey University*
- **Academic Assistant** August 2019 – January 2021  
*School of Fundamental Sciences, Massey University*
- **Graduate Assistant in Mathematics** January 2017 – January 2020  
*School of Fundamental Sciences, Massey University*
- **Instructor: Mathematics and Physics** December 2015 – November 2016  
*Al-Hikmat Science College, Nigeria*
- **Industrial Training** April 2011 – October, 2011  
*Ministry of Education, Lagos State Secretariat, Nigeria*
- **Ministry of Economic Planning and Budget** Lagos State Secretariat, Nigeria  
*Students Industrial Work Experience Scheme*  
Sep. 2006 - Dec. 2006
- **Instructor** September 2008 – February 2010  
*D Professional Academia, Lagos, Nigeria*

## Awards, Grants & Honours

- **Cover Page** January 2022  
*The European Physical Journal B*  
– Our graphical abstract for the paper published in EPJB made the cover page for the issue.
- **SIAM Travel Award** April 2021 and July 2021  
*SIAM DS21 and AN21*  
– Awarded SIAM student travel awards to attend the SIAM conference on Applications of Dynamical Systems and present a contributed talk at the SIAM Annual Meeting.

- **SMB Conference Support** June 2021  
*SMB Annual Meeting 2021*
  - Awarded SMB student support to attend and present a contributed at the SMB Annual Meeting.
  
- **Travel Grant** February 2020  
*School of Fundamental Sciences, Massey University*
  - Awarded SFS postgraduate student travel grant to attend and present a contributed talk at the ANZIAM Conference, Hunter Valley, Australia.
  
- **ANZIAM Poster Prize** December 2019  
*2019 NZMS Colloquium*
  - My research poster was awarded the second prize.
  
- **PhD Tuition Scholarship** January 2017 – December 2020  
*School of Fundamental Sciences, Massey University*
  
- **MSc Scholarship** August 2013 – June 2014  
*African Institute of Mathematical Sciences, Ghana*
  
- **Best Graduating Student** November 2012  
*Department of Mathematical Sciences, Federal University of Technology, Akure*
  
- **Silver and Bronze Medals** June 2011 and June 2012  
*National Mathematics Competition for University Students (NAMCUS)*
  - NAMCUS is a national mathematics organised annually by the National Mathematical Centre for university students. I represented my university in the 2011 and 2012 editions, I won bronze and silver medals, respectively.
  
- **Branding FUTA Award** November 2011 and November 2012  
*Federal University of Technology, Akure*
  - Given to students and staffs in recognition of their academic excellence and research. The school management recognised my success at the national mathematics competition in the year 2011 and 2012.
  
- **Best Graduating Student** January 2008  
*Department of Mathematics and Statistics, Federal Polytechnic, Ede*
  
- **Polytechnic Scholar Award** September 2006  
*Federal Polytechnic, Ede*
  - Given to students in recognition of their academic excellence.

## Research Publications

1. **H.O. Fatoyinbo**, R.G. Brown, D.J.W Simpson, & B. van Brunt, *Pattern Formation in a Spatially-Extended Model of Pacemaker Dynamics in Smooth Muscle Cells*. Bull. Math. Biol., **84**, 5, (2022); ([link](#))
  
2. S. S. Muni, **H.O. Fatoyinbo**, & I. Ghosh, *Dynamical effects of electromagnetic flux on Chialvo neuron map: nodal and network behaviors*. International Journal of Bifurcation and Chaos, **32**, 9, (2022) ([link](#))
  
3. A. Abidemi, J. Ackora-Prah, **H.O. Fatoyinbo**, & J.K.K. Asamoah, *Lyapunov stability analysis and optimization measures for a dengue disease transmission model*, Physica A, **602**, 127646, (2022); ([link](#))

4. **H.O. Fatoyinbo**, S.S. Muni, I. Ghosh, I.O. Sarumi, & A. Abidemi, *Numerical Bifurcation Analysis of Improved Denatured Morris-Lecar Neuron Model*, 2022 International Conference on Decision Aid Sciences and Applications (DASA), 2022, pp. 55-60; ([link](#))
5. A. Abidemi, **H.O. Fatoyinbo**, J.K.K. Asamoah, & S.S. Muni, *Evaluation of the Efficacy of Wolbachia Intervention on Dengue Burden in a Population: A Mathematical Insight*, 2022 International Conference on Decision Aid Sciences and Application (DASA), 2022, pp. 1618-1627; ([link](#))
6. **H.O. Fatoyinbo**, S.S. Muni & A. Abidemi *Influence of Sodium Inward Current on Dynamical Behaviour of Modified Morris-Lecar Model*. Eur. Phys. J. B 95, 4 (2022)([link](#))([cover](#))
7. A. Abidemi, **H.O. Fatoyinbo**, *Mathematical Analysis of Optimal Cost-effective Control of COVID-19: A Case Study*, 2021 International Conference on Decision Aid Sciences and Application (DASA), Sakheer, Bahrain, 2021, pp. 95-102; ([link](#))
8. A. Abidemi, **H.O. Fatoyinbo**, & J.K.K. Asamoah, *Analysis of Dengue Fever Transmission Dynamics with Multiple Controls: A Mathematical Approach*, 2020 International Conference on Decision Aid Sciences and Application (DASA), Sakheer, Bahrain, 2020, pp. 971-978; ([link](#))
9. **H.O. Fatoyinbo**, R.G. Brown, D.J.W Simpson, & B. van Brunt, *Numerical Bifurcation Analysis of Pacemaker Dynamics in a Model of Smooth Muscle Cells*. Bull. Math. Biol., **82**, 95, (2020); ([link](#))
10. **H.O. Fatoyinbo** & D.J.W Simpson, *A synopsis of the non-invertible, two-dimensional, border-collision normal form with applications to power converters*. (Submitted to IJBC); ([arxiv](#))
11. D. Mukherjee, S. S. Muni & **H.O. Fatoyinbo** *Dynamical Model of Mild Atherosclerosis: Applied Mathematical Aspects* (Submitted); ([arxiv](#))
12. I. Ghosh, S. S. Muni & **H.O. Fatoyinbo**, *On the analysis of a time varying noise-modulated heterogeneous coupled network of Chialvo neurons under the influence of electromagnetic flux*; ([arxiv](#))

### Book of Abstract

1. **H.O. Fatoyinbo**, *Pattern Formation in Electrically Coupled Pacemaker Cells*, Bull. Aust. Math. Soc., (2022); ([link](#))
2. **H.O. Fatoyinbo**, R.G. Brown, D.J.W Simpson, & B. van Brunt, *Effects of Conductance of Ion Channels on Spontaneous Electrical Activity in Smooth Muscles*. 13th Conference on Dynamical Systems Applied to Biology and Natural Sciences, (2022); ([link](#))

### Other Publications

1. **H.O. Fatoyinbo**, *Pattern Formation in Electrically Coupled Pacemaker Cells*. PhD Thesis, Massey University, Manawatū, New Zealand, 2021. ([link](#))
2. **H.O. Fatoyinbo**, *Solitons*. Master's Thesis, African Institute of Mathematical Sciences, Ghana, 2014. ([link](#))

## Teaching Experience

- Teaching (EpiCentre-SOVS, Massey University)
  - MPI Applied Epidemiology Training  
Semester 1, 2022
  - APCOVE: Introduction to Data Analysis  
Semester 1, 2022
- Teaching Assistant (SMCS, Massey University)
  - Linear Algebra, 160.102 Semester 1, 2022
  - Calculus, 160.101 Semester 2, 2021
  - Introductory Mathematics for Science, 160.104 Semester 2, 2020
  - Agri-Statistics, 161.140 Semester 1, 2020
  - Foundation Mathematics 1 Semester 1, 2019
  - Calculus, 160.101 Semester 2, 2018
- Instructor (Al-Hikmat Science College)
  - Mathematics and Physics (Year 9–12) Term 1&2, 2016
  - Mathematics and Computer Lab (Year 6–8 ) Term 1&2, 2016
- Instructor (D’Professional Academia)
  - Mathematics and Physics (Year 9–12)

## Selected Contributed Talks

- **EpiCentre Seminar Series** November 2022  
*Virtual*
  - Analysis of dengue fever transmission dynamics with Multiple Controls.
- **MPI-Massey Day** November 2022  
*Wellington, New Zealand*
  - Modelling of dengue fever transmission and implication for New Zealand.
- **ANZIAM Conference** February 2022  
*Virtual*
  - Border-collision bifurcations in non-invertible, two-dimensional, piecewise-smooth maps.
- **DSABNS2022** February 2022  
*Virtual*
  - Effects of ion channels conductance on spontaneous electrical activity in smooth muscles.
- **SIAM AN21** July 2021  
*Virtual*
  - Formation and Propagation of Excitation Waves in a Model of Electrically Coupled Pacemaker Cells.

- **SMB Annual Meeting** June 2021  
*Virtual*  
 – Stability of Travelling Waves in Electrically Coupled Smooth Muscle Cell. ([abstract](#))
- **ANZIAM** February 2021  
*Virtual*  
 – Stability of Travelling Waves in a Model of Pacemaker Cells.
- **UNCG Regional Mathematics and Statistics Conference** November 2020  
*Virtual*  
 – Influence of sodium inward current on dynamical behaviour of modified Morris–Lecar model. ([abstract](#))
- **eSMB** August 2020  
*Virtual*  
 – Spatiotemporal Dynamics in Spontaneous Excitable Cells. ([abstract](#))
- **ANZIAM** February 2020  
*Hunter Valley, NSW, Australia*  
 – Spatiotemporal Pattern Formation in a Model of Electrically Coupled Smooth Muscle Cells.
- **NZMS** December 2019  
*Massey University, Palmerston North, New Zealand*  
 – Spatiotemporal Pattern Formation in a Model of Electrically Coupled Smooth Muscle Cells.
- **3MT Competition** July 2019  
*Massey University, Palmerston North, New Zealand*  
 – Is there CHAOS in the brain?
- **NZMS** December 2018  
*University of Otago, Dunedin, New Zealand*  
 – Emergence of Spatiotemporal Patterns in Pacemaker Coupled Excitable Cells.
- **NZMASP** November 2018  
*Waikanae, New Zealand*  
 – Pattern Formation in Pacemaker Dynamics of Coupled Excitable Cells.
- **SFS Postgraduate Seminar** October 2017  
*Massey University, Palmerston North, New Zealand*  
 – Pattern Formation in a Reaction-Diffusion Systems.
- **Student Seminar** November 2013  
*African Institute of Mathematical Sciences, Ghana*  
 – Solitons

## Poster Presentations

- **Dynamics Days Europe (2020)**, *Spatiotemporal Chaos: Complex Dynamics in a Model of Coupled Smooth Muscle Cells.*; ([poster](#))
- **Mathematical Models in Biology: from Information Theory to Thermodynamics (2020)**, *Pattern Formation in Gap-junction Coupled Smooth Muscle Cells.* ([poster](#))
- **NZMS Colloquium (2019)**, *Spatiotemporal Pattern Formation in a Model of Electrically Coupled Smooth Muscle Cells.* ([poster](#))

## Academic Activities

- Refereed research articles for Nonlinear Dynamics and Biophysical Reviews and Letters
- Co-organiser  $\text{\LaTeX}$ workshop for SFS postgraduate students, Massey University, October 2020
- Judge for SIMIODE SCUDEM Competition, 2020 and 2021
- Marker and Reviewer for the Massey University Mathematics and Statistics (M3S) Quiz for Year 12 students, 2018 and 2019
- Co-organiser New Zealand Mathematics and Statistics Postgraduate Conference held at Waikanae, November 2018
- Member of NZMS, ANZIAM, SIAM & SMB
- Student Volunteer, Professional & Continuing Education (PaCE), Massey University, March 2017
- School Outreach, Biriwa Village, Ghana

## Other Services

### • Community and Volunteer Services

- NZ Rural Games, Kelly Sport Palmerston North, 2018 and 2019
- NZ Racketlon Championship held in Palmerston North, 2018
- National Secondary School Volleyball Championships held in Palmerston North, 2017
- Te Apiti Whanau Challenge, Sport Manawatu, 2017
- Member, Drug Free Club, National Youth Service Corps Kogi State, 2016

### • Leadership

- President, Massey Muslim Society, Massey University, 2018
- President, Muslim Corpers Association of Nigeria, Kogi State, Nigeria, 2016
- Financial Secretary, Mathematics Students Association, FUTAkure, 2011
- Chief Clerk, Mathematics and Statistics Students Association, FedPolyEde, 2006

## Computer Language Capabilities

- Matlab, Python, R,  $\text{\LaTeX}$ , XppAut, AUTO, MATCONT(m), Maple

## Referees

Dr. David J. W. Simpson  
School of Mathematical and Computational Sciences  
Massey University, New Zealand  
[D.J.W.Simpson@massey.ac.nz](mailto:D.J.W.Simpson@massey.ac.nz)

Dr. Richard G. Brown  
School of Mathematical and Computational Sciences  
Massey University, New Zealand  
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Assoc. Prof. Bruce van Brunt  
School of Mathematical and Computational Sciences  
Massey University, New Zealand  
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Prof. Patrick Dorey  
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Durham University, United Kingdom  
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