Yusuf Olatunji Tijani PhD

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olodyusuf@gmail.com
ORCID, Google Scholar, WoS

CURRENT POSITION	**Postdoctoral Research Fellow**
	Rhodes University, Grahamstown, South Africa. 2024 - present

RESEARCH INTERESTS

1. Numerical analysis and scientific computing
2. Computational fluid dynamics
3. Fractional calculus
4. Mathematical modelling (dynamical systems)
5. Machine learning

EDUCATION

Department of Mathematics, Nelson Mandela University.   Port-Elizabeth, South Africa
PhD in Applied Mathematics   2019 - 2023

Department of Mathematics, Obafemi Awolowo University.   Ile-Ife, Nigeria
MSc in Mathematics   2015 - 2018

Department of Mathematics, Obafemi Awolowo University.   Ile-Ife, Nigeria
BSc in Mathematics   2008 - 2013
- CGPA: 79.8%, Rank: 1/35.

TEACHING EXPERIENCE

Teaching Assistant
Department of Mathematics, Rhodes University, Makhanda, South-Africa.   2025

Graduate Teaching
Department of Mathematics and Applied Mathematics, Nelson Mandela University, Gqeberha, South-Africa.   05/2020 - 10/2023

Contract Lecturer
Department of Mathematics and Applied Mathematics, Nelson Mandela University, Gqeberha, South-Africa.   2021

Mathematics Teacher
Unity Junior College, Agege, Lagos, Nigeria.   02/2019 - 02/2020

Mathematics Tutor
Department of Mathematics, Obafemi Awolowo University, Ile-Ife, Nigeria.   05/2016 - 12/2018

Mathematics Lecturer
Department of Mathematics, Obafemi Awolowo University, Parent Assisted Rudimentary Tutorial Programme, Nigeria.   02/2015 - 04/2016

STUDENT SUPERVISION

Baqiwe Sixolile
***Master**, (Ongoing)*   2025

Zintathu Jozela
***Honours**, (Ongoing)*   2025

Baqiwe Sixolile
***Honours**, Image processing and binarization through non-linear partial differential equations.*   2024

1. Shina Daniel Oloniiju, Nancy Mukwevho, **Yusuf Olatunji Tijani,** and Olumuyiwa Otegbeye. Chebyshev pseudospectral method for fractional differential equations in partitioned domains. *AppliedMath.* 4(3), 950-974, 2024.

2. **Yusuf Olatunji Tijani,** Appanah Rao Appadu, and Adebayo Abiodun Aderogba. Some finite difference methods to model biofilm growth and decay: Classical and non-standard. *Computation (MDPI).* 9 (11), 123, 2021.

3. **Yusuf Olatunji Tijani,** Mojeed Taiwo Akolade, Olumuyiwa Otegbeye, and Abdulhakeem Yusuf. Surface dynamics on Jeffrey nanofluid flow with Coriolis effect and variable Darcy regime. *ZAMM - Journal of Applied Mathematics and Mechanics.* 104(2) 2024.

4. Shina Daniel Oloniiju, **Yusuf Olatunji Tijani,** and Olumuyiwa Otegbeye. Thermal analysis of extended surface using deep neural network. *Open Physics.* 22 (1), 20240051, 2024.

5. **Yusuf Olatunji Tijani,** Shina Daniel Oloniiju, Olumuyiwa Otegbeye, and Ajiboye Reginald Babalola. Magnetic feature and regression analysis of Reiner-Philippoff boundary layer flow. *Numerical Heat Transfer, Part B: Fundamentals.* 1–19, 2023.

6. **Yusuf Olatunji Tijani** and Appanah Rao Appadu. Unconditionally positive NSFD and classical finite difference schemes for biofilm formation on medical implant using Allen-Cahn equation. *Demonstratio Mathematica.* 55 (1), 40-60, 2022.

7. Appanah Rao Appadu, Abey Sherif Kelil and **Yusuf Olatunji Tijani.** Comparison of some forecasting methods for COVID-19. *Alexandria Engineering Journal.* 60(1), 1565-1589, 2021.

- **Top Downloaded Article,** Heat Transfer, 2022 - WILEY. 03/2024
- **Postdoctoral Research Fellowships,** Rhodes University. 10/2023, 09/2024
- **COVID-19 Research Grant,** Nelson Mandela University. 09/2020
- **Best Graduating Student,** Faculty of Science Prize for 2011/2012 Session. 12/2014
- **Graduating student with the best all round performance,** Professor (Chief) Reuben Olafenwa Ayeni Memorial Prize for 2011/2012 Session. 12/2014
- **Best all round,** Agege Primary School End of the year award. 12/2000

The 46th Annual South African Symposium on Numerical & Applied Mathematics (SANUM) | University of Witwatersrand, South Africa. 04/2025

67th Annual Congress of the South African Mathematical Society (SAMS) | University of Pretoria, South Africa. 12/2024

16th Annual Workshop on Computational Mathematics and Modelling | University of KwaZulu-Natal, Pietermaritzburg Campus, South Africa. 06/2024

The 45th Annual South African Symposium on Numerical & Applied Mathematics (SANUM) | University of Stellenbosch, South Africa. 04/2024

14th Annual Workshop on Computational Mathematics and Modelling | University of KwaZulu-Natal, Pietermaritzburg Campus, South Africa. 06/2022

18th International Conference of Numerical Analysis and Applied Mathematics (ICNAAM) | Rhodes, Greece. 09/2020

63rd Annual Congress of the South African Mathematical Society (SAMS) | North-West University, South Africa. 12/2020

36th Annual Conference of the Nigerian Mathematical Society (NMS) | University of Agriculture, Makurdi, Nigeria. 06/2017

Skills

Languages: English, Yoruba, IsiXhosa (Beginner), Arabic (Beginner).

Programming: MATLAB, Maple, Python, Julia(Beginner).

Typesetting: LaTeX, Microsoft Office, Overleaf.

Presentations

Sensitivity and numerical simulation of unsteady reactive hydromagnetic Eyring-Powell flow in a non-horizontal channel. | 46th South African Numerical and Applied Nathematics (SANUM) 2025, University of the Witwatersrand, South Africa   04/2023

Adaptive multidomain numerical solution for singularly perturbed fractional differential equation: Chebyshev pseudospectral method | 67th Annual Congress of the South African Mathematical Society (SAMS), University of Pretoria, South Africa.   12/2024

Exploring fluid dynamics: The role of Mathematicians | Seminar series in the Department of Mathematics, Rhodes University, Makhanda, South Africa.   08/2024

Thermal analysis of extended surfaces using deep neural networks. | 16th Annual Workshop on Computational Mathematics and Modelling (WOCCOM2024), University of Kwazulu-Natal, South Africa.   06/2024

Finite difference method for Burgers-Huxley equation and biofilm formation. | Department of Mathematics and Applied Mathematics, Nelson Mandela University, Gqeberha, South Africa.   11/2022

On the numerical solution of 2D Burgers-Huxley equation using NSFD and classical methods | 18th International Conference of Numerical Analysis and Applied Mathematics (IC-NAAM), Rhodes, Greece.   09/2020

An oscillatory MHD convection flow past an infinite vertical porous plate with variable suction, radiation and heat generation in the presence of chemical reaction | 35th Annual Conference of the Nigerian Mathematical society, Federal University of Technology, Minna, Nigeria.   06/2016

Professional Affiliations

South Africa Mathematical Society (SAMS): Member.

Nigerian Mathematical Society (NMS): Member.

American Mathematical Society (AMS): Member.

Referees

Dr. Shina Daniel Oloniiju
Department of Mathematics, Rhodes University, South Africa.
E-mail - s.oloniiju@ru.ac.za, Tel: +27 640300986.

Professor Suraju Olusegun Ajadi
Department of Mathematics, Obafemi Awolowo University, Ile-Ife, Nigeria.
E-mail - soajadi@yahoo.co.uk, Tel: +234 8030545990.

Professor Appanah Rao Appadu
Department of Mathematics, Nelson Mandela University, Gqeberha, South Africa.
E-mail - Rao.Appadu@mandela.ac.za, Tel: +27 790324738.

Dr. Olumuyiwa Otegbeye
School of Computer Science and Applied Mathematics, University of the Witwatersrand, South Africa.
E-mail - olumuyiwa.otegbeye@wits.ac.za, Tel: +27 733444196.

Professor Samuel Segun Okoya
Department of Mathematics, Obafemi Awolowo University, Ile-Ife, Nigeria.
E-mail - ssokoya@gmail.com, Tel: +234 8035622581.