

# Dr. Michael Onyango Ojiema

Mathematics Department, Masinde Muliro University of Science & Technology  
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## Professional Summary

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- Ph.D. in Pure Mathematics with extensive research in algebra, ring theory, graph theory, and coding theory.
- Experienced Senior Lecturer and researcher with proven success in attracting research funding and supervising doctoral and master's students.
- Skilled in constructing robust mathematical structures, algorithms, and analytical tools to solve complex real-world problems.
- Collaborative consultant on climate shock modeling, biodiversity projects, and gender equality partnerships with international organizations.

## Education

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- **Ph.D. in Pure Mathematics** – Maseno University, Kenya (2016)  
Dissertation: Automorphisms of the Unit groups of Square radical zero, Cube radical zero and Power four radical zero finite commutative completely primary rings.
- **Ph.D. Research (Mathematics)** – University of Kwazulu-Natal, South Africa (2014–2016)  
Research Area: Classification Problems in Algebra and Geometry.
- **M.Sc. in Pure Mathematics** – Masinde Muliro University of Science and Technology (2011–2013)  
Thesis: On the Structures of the Unit Groups of Power Four Radical Zero Commutative Completely Primary Finite Rings.
- **B.Ed. Science (Mathematics & Physics)** – Masinde Muliro University of Science and Technology (2007–2011)

## Academic Experience

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### Senior Lecturer (Grade XIII)

*April 2021 – Present*

Department of Mathematics, Masinde Muliro University of Science and Technology

- Teach Ph.D. and Master's courses in Pure Mathematics; supervise doctoral and MSc. students.
- Lead curriculum development for Pure Mathematics courses; coordinate internships and fieldwork placements.
- Conduct research in algebra, graph theory, and coding theory; publish in peer-reviewed journals.

### Lecturer (Grade XII)

*June 2017 – March 2021*

Department of Mathematics, Masinde Muliro University of Science and Technology

- Taught graduate and undergraduate mathematics courses; served as Departmental Graduate School Representative.
- Supervised Ph.D. and MSc. students; conducted research and published regularly.

### Assistant Lecturer (Grade XI)

*2014 – May 2017*

Department of Mathematics, Masinde Muliro University of Science and Technology

- Taught undergraduate mathematics courses; supervised undergraduate projects.
- Academic advisor for third-year B.Sc. Mathematics students.

### Graduate Teacher

*2011–2012*

Namirama Girls High School – Teaching Mathematics and Physics; Head of Mathematics Department.

## Consultancy & Research Projects

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- **Eco2Librium Company, Consultant** (2023–Present) – Mathematical aspects of climate shock and related projects.
- **UK Centre for Ecology and Hydrology** – Project: “Effect of Tree Planting on Biodiversity & People-Nature relationships in South-Eastern Kenya” (2025–Present).
- **British Council / King’s College London** – Project: “Gender Equality Partnership” (2024–2025).
- **University of Michigan / Eco2** – Project: “Understanding the Impact of Extreme weather events on households in Kenya” (2025).

## Research Funding & Grants

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- **USD 28,926.32 (Ksh. 3,747,427.37)** – British Council / King’s College London (2024–2025) – Gender Equality Partnership.
- **GBP 10,000 (Ksh. 1,730,108.00)** – UKCEH / Eco2Librium (2025) – Biodiversity and tree planting research.
- **USD 24,556 (Ksh. 3,181,229)** – University of Michigan / Eco2 (2025) – Extreme weather impact on households.
- **USD 5,000** – AUDA-NEPAD (2024) – AFR100 Land Accelerator Programme: Women and Youth Restoration Entrepreneurs.
- **Kes. 450,000** – Ph.D. HELB Grant (2018) – Supervision of “Automorphisms of Graphs of finite Rings”.
- **Kes. 400,000** – NRF Ph.D. Grant (2016) – Supervision of “Characterization of Banach Space Ideals”.
- **Kes. 350,000** – NACOSTI Ph.D. Research Grant (2015).

## Selected Publications (Recent)

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- Afzal Siddiqui, H. M., Usman, M., Kareem Kirmani, S. A., & **Ojiema, M. O.** (2025). On Edge Differential of Certain Families of Graphs. *Journal of Mathematics*, 1(1), 1-9.
- Okombo, M. I., **Ojiema, M. O.**, Kivunge, B., & Marani, V. (2025). Designs and Lattices from Classes of Cyclic linear Ternary Codes over GF(3). *Science Mundi*, 5(1), 115-136.
- Fatima Asif, Kashif, A., Zafar, S., & **Ojiema, M. O.** (2025). Mostar Index of Certain Classes of bicyclic graphs. *Journal of Combinatorial Mathematics and Combinatorial Computing*, 125, 431-444.
- Waswa, S., Nyongesa, K., Akinyi, C., **Ojiema, M. O.**, & Tireito, F. (2025). Comparative analysis of generalized least squares and generalized inverse regression models. *Science Mundi*, 5(2), 304-316.
- **Ojiema, M. O.** (2024). Designs and Hull-Automorphisms of Quaternary Codes over Classes of Group Rings. *Science Mundi*, 4(2), 273-296.
- Faiza Jamil, Kashif, A., Zafar, S., & **Ojiema, M. O.** (2023). Local Fractional Strong Metric Dimension of Certain Complex Networks. *Hindawi, Complexity*, 1, 1-8.
- Humera Bashir, Zahid, Z., & **Ojiema, M. O.** (2022). Computation of the Fault-Tolerant Metric Dimension of Certain Networks. *Hindawi Mathematical Problems in Engineering*, 1, 1-12.

Full publication list (39+ peer-reviewed articles, including book chapter) available upon request.

## Supervision

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### Completed Doctoral (Ph.D.) Students:

- Frank Omondi Ndago (2025), Mary Immaculate Okombo (2025), Eliud Mmasi (2024), Makila

Patrick Wanjala (2023), Abuga Joseph Motanya (2023), Hussein Mude Lao (2021).

### **Completed Master's (MSc.) Students:**

- Mary Achungo (2024), Violet Khaveri Agala (2022), Vashti Bernice Achieng (2022), Beatrice Mengich (2020), Wenani Joseph Wafula (2018), Frank Omondi Ndago (2018).

### **Ongoing Supervision:**

- Daisy Ingado Binayo (Ph.D.), Edwine Nalianya (MSc.), Kegode Pascal (MSc.), Violet Khaveri Agala (Ph.D.), Boaz Simwato (Ph.D.), Hillary Amonyela (Ph.D.).

### **Administrative Leadership (Selected)**

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- Acting Associate Dean, School of Natural Sciences (2022–2024)
- Acting Director, Directorate of Postgraduate Studies (2022)
- Campus Coordinator, Budalangi Campus (2021)
- Chairman, Graduate School Committee (SONAS Representative, 2018–2025)
- Coordinator, Attachments, Internships and Placements, Mathematics Department (2017–Present)

### **Skills & Certifications**

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- **Mathematical Expertise:** Ring Theory, Group Theory, Graph Theory, Coding Theory, Operator Theory, Combinatorics, Linear Algebra, Topology.
- **Research & Analytical:** Grant Writing, Doctoral Supervision, Curriculum Development, Peer Review, Data Analysis.
- **Technical:**  $\text{\LaTeX}$ , STACK (e-assessment), Mathematical Modeling, MAGMA, GAP.
- **Languages:** English (fluent), Kiswahili (fluent).

### **Professional Memberships**

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- Member, Kenya Mathematical Society (KMS-FM-00230)
- Member, European Mathematical Society
- Honorary Rosalind Member, London Journal Press (No. 0066217)

### **Community Engagement**

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- Vice Chairman, Sino Forum for Development – Fundraising for disadvantaged students.
- Chairman, BOM St. Joseph's Sino Secondary School (2019–Present)
- Vice Chairman, UASU-MMUST Chapter.
- Director, Couples, Dominion Worship Church-Kakamega.
- Motivational speaker for secondary schools across Kenya.

### **References**

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#### **Prof. Achilles Simiyu Nyongesa**

Associate Professor & Chairperson, Department of Mathematics, MMUST

Mobile: +254 722 455156: Email: anyongesa@mmust.ac.ke

#### **Prof. Maurice Owino Oduor**

Deputy Vice Chancellor (Planning, Research & Innovation) & Professor of Pure Mathematics

University of Kabianga: Mobile: +254 721 753991: Email: morricearaka@yahoo.com

#### **Prof. George Owuor Lawi**

Associate Professor of Applied Mathematics, MMUST

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