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### **ACADEMIC PROFILE**

<b>INSTITUTION</b>	<b>DURATION</b>	<b>CERTIFICATE OBTAINED</b>
<b>Masinde Muliro University of Science and Technology</b>	2010 to 2017	PhD- Pure Mathematics
<b>Masinde Muliro University of Science and Technology</b>	2007 to 2010	MSc –Pure Mathematics
<b>Kenyatta University</b>	2001- 2004	B. Ed (Science)
<b>KASNEB</b>	1995	KATC
<b>Moi Science Teachers’ College</b>	1987 -1989	Dip. Ed (Science)
<b>Dagoretti High School</b>	1984- 1985	K. A. C. E
<b>City High School</b>	1980-1983	K. C. E
<b>City High School</b>	1980-1981	K. J. S. E
<b>Inavi Primary School</b>	1973-1979	C. P. E.

### **OTHER COURSES ATTENDED**

<b>INSTITUTION</b>	<b>DURATION</b>	<b>CERTIFICATE OBTAINED</b>
<b>Shalom Bible College and Seminary</b>	2020-2021	Master of Theology

### WORKING EXPERIENCE

<b>PERIOD</b>	<b>INSTITUTION</b>	<b>GRADE /RESPONSIBILITY</b>
May, 2015 to date	Masinde Muliro University of Science and Technology	Lecturer Scale XII -Teaching Pure Mathematics to Undergraduate and post-graduate students -Representative of the Department to the faculty SGS -Class Advisor for second years
October, 2014 to May, 2015	South Eastern Kenya University	Tutorial Fellow Scale XI
2013 to 2014	Kenya Institute of Curriculum Development	Deputy Chief Planning Officer -Participated in the preparation of KICD ISO Surveillance audit and recertification 2014/2015 -Participated in the negotiation and signing of the KICD Performance Contract 2014/2015 -Participated in the Annual Evaluation Exercise of the KICD Performance Contract 2013/2014 -Acted as Chief Planning Officer for 30 days -Participated in signing the KICD Performance Contract 2013/2014 -Participated in the Annual Evaluation Exercise of the KICD Performance Contract 2012/2013
2013 to 2014	The Technical University of Kenya (PT)	EEMQ2111- Engineering Mathematics IIB SSBH1103-Basic Mathematics MLS005: Mathematics for Medical Laboratory Sciences
2011-2013	Masinde Muliro University of Science and Technology(PT)	MAT 215- Classical Mechanics MAT 213- Calculus and Analytical Geometry MAT 122- Elementary Applied Mathematics
2012 to 2014	Mount Kenya University (PT)	EMA 311 – Real Analysis I EMA 111 – Basic Mathematics EMA 221 – Algebraic Structure BMA 322- Linear Algebra EMA 112 – Calculus I EMA 121 – Calculus II

		EMA 122 – Analytic Geometry SBC 127 – Business Mathematics I BMA 1202-Business Mathematics II
2011 -2013	St. Patrick’s Ikonyero Secondary School	Deputy Principal
2005-2007	St.Ignatius’ Mukumu Boys’ High School	HoD Mathematics
1994-2004	Lirhanda Girls High School	Director of Studies
1989-1994	St.Anne’s Musoli Girls High School	Ag HoD Science

### UNITS COVERED IN MSc COURSE WORK

COURSE CODE	COURSE TITLE	LECTURER
1. MAT 811	Abstract Integration I	Prof. Aywa
2. MAT 812	Abstract Integration II	Prof. Aywa
3. MAT 821	Group Theory	Prof. Aywa
4. MAT 815	General Topology	Prof. Agure
5. MAT 813	Functional Analysis I	Dr. Nyongesa
6. MAT 814	Functional Analysis II	Dr. Nyongesa
7. MAT 831	Banach Algebras	Prof. Agure
8. MAT 833	Operator Theory I	Prof. Agure
9. MAT 837	Operator Theory II	Prof. Rao
10. MAT 829	Commutative Algebra	Prof. Aywa
11. MAT 843	Coding Theory	Prof. Aywa

### MAJOR TEACHING AREAS

#### **Undergraduate**

- ❖ Linear Algebra, I, II, III
- ❖ Vector analysis
- ❖ Real Analysis I and II
- ❖ Functional Analysis
- ❖ Algebraic structures
- ❖ Group Theory
- ❖ Differential Geometry
- ❖ Calculus I, II, III
- ❖ Elementary Applied Mathematics
- ❖ Supervision and assessment of undergraduate projects, assessment of students on industrial attachment

#### **Masters**

- ❖ General Topology I, II
- ❖ Coding Theory
- ❖ Supervision and guidance of graduate students writing proposals and thesis in pure mathematics.

#### **Participation in Conferences**

1. CDC-IMU Project on “Enhancing Quality and Internationalization of Mathematics Doctoral Supervision” held at Sirikwa Hotel, jointly hosted by Moi University and the University of Nairobi, sponsored by Technical University of Munich from 2<sup>nd</sup> to 4<sup>th</sup> November, 2022.
2. System for Training and Assessment using Computer algebra Kernel (STACK) Workshop at Maseno University from July 4<sup>th</sup> –July 8<sup>th</sup> 2022.
3. Graph Theory School hosted by University of Johannesburg on 4<sup>th</sup> -7<sup>th</sup> October, 2021 through Zoom platform.
4. 1<sup>st</sup> Kenyatta University International Conference of Mathematics (8<sup>th</sup> – 10<sup>th</sup> June 2011), Kenyatta University.

### Presentations in conferences

Presented a paper entitled “Ideals of the Polynomial Ring  $F_2^n[x] \text{ mod } (x^n - 1)$  for Error Control in Computer Applications” in the first Kenyatta University International Mathematics Conference, June, 2011. (A **paper** with two authors: **Olege Fanuel** and Aywa)

### PUBLICATIONS

#### 1. Title: Calculus of Orthogonal Projectors

**Publisher:** SD Publisher Group

**Journal:** Asian Research Journal of Mathematics

**Status:** Published as Vol. 18, No.8, 2022, pgs 13-21; Article no. ARJOM.88638

**Date Published:** 21<sup>st</sup> June, 2022.

ISSN: 2456-477X, DOI: 10.9734/ARJOM/2022/v18i830394

(A **paper** authors: Alwany Kevin Shilaviga, Achilles Nyongesa Simiyu and **Fanuel Olege**)

#### 2. Title: Characterization of Orthogonal Projectors

**Publisher:** SD Publisher Group

**Journal:** Journal of Advances in Mathematics and Computer Science

**Status:** Published as Vol. 37, No.3, 2022, pgs 33-42; Article no. JAMCS.86823

**Date Published:** 29<sup>th</sup> April, 2022.

ISSN 2456-9968, DOI:10.9734/JAMCS/2022/v37i330440

(A **paper** authors: Achilles Nyongesa Simiyu, Alwany Kevin Shilaviga and **Fanuel Olege**)

#### 3. Title: Spectral Radius of a Normal Operator

**Publisher:** SD Publisher Group

**Journal:** Asian Research Journal of Mathematics

**Status:** Published as Vol. 18, No.1, 2022, pgs 39-52; Article no. ARJOM.79392

**Date Published:** 15<sup>th</sup> January, 2022.

ISSN 2456-477X, DOI:10.9734/ARJOM/2022/v18i13053

(A **paper** authors: Achilles Nyongesa Simiyu, Philis Alosa and **Fanuel Olege**)

#### 4. Title: Analiticity of the Resolvent Function

**Publisher:** SD Publisher Group

**Journal:** Journal of Advances in Mathematics and Computer Science

**Status:** Published as Vol. 36, No.10, 2021, pgs 1 – 9; Article no. JAMCS.77845

**Date Published:** 1<sup>st</sup> December, 2021.

ISSN 2456-9968, DOI:10.9734/JAMCS/2021/v36i 1030407

(A **paper** authors: Achilles Nyongesa Simiyu, Philis Alosa and **Fanuel Olege**)

5. **Title:** Determination of Generators of codes of ideals of the Polynomial Ring  $F_2^N[X]/\langle X^N - 1 \rangle$   
**Publisher:** Hikari Ltd  
**Journal:** International Mathematical Forum  
**Status:** Published as Vol. 16, No.4, 2021, pgs 151 – 156  
**Date Published:** 24<sup>th</sup> August, 2021.  
ISSN 1314-7536, <https://doi.org/10.12988/imf.2021.912252>  
(A **paper** author: **Olege Fanuel**)
  
6. **Title:** On the Application of Algebraic Coding Theory to the Ideals of the Polynomial Ring  $F_2^N[X]/\langle X^N - 1 \rangle$   
**Publisher:** The International Institute for Science, Technology and Education (IISTE)  
**Journal:** Mathematical Theory and Modelling  
**Status:** Published as Vol. 9 No. 9 2019, ISSN 2224-5804(Paper) ISSN 2225-0552  
(Online) DOI: 10.7176MTM  
**Date Published:** September, 2019  
A **paper** author: **Olege Fanuel**)
  
7. **Title:** On the Generators of Codes of Ideals of the Polynomial Ring  $F_2^N[X]/\langle X^N - 1 \rangle$  for Error Control  
**Publisher:** Hikari Ltd  
**Journal:** International Mathematical Forum  
**Status:** Published as Vol. 14, 2019, No. 4, pgs 189 – 203  
<https://doi.org/10.12988/imf.2019.9732>  
**Date Published:** 3<sup>rd</sup> September, 2019.  
(A **paper** author: **Olege Fanuel**)
  
8. **Title:** Perfect Repetition Codes of Ideals of the Polynomial Ring  $F_2^n[x] \bmod(x^n - 1)$  for Error Control in Computer Applications  
**Publisher:** Science Signpost (SSPub)  
**Journal:** Journal of Mathematics and Statistical Sciences  
**Status:** Published as Vol. No.10, 2016, pgs 579-605  
**Date Published:** 25<sup>th</sup> October, 2016  
(A **paper** with four authors: **Olege Fanuel**, Aywa, Owino and Akinyi)
  
9. **Title:** Characterization of codes of Ideals of the Polynomial Ring  $F_2^n[x] \bmod(x^n - 1)$  for Error Control in Computer Applications  
**Publisher:** Council for Innovative Research  
**Journal:** Journal of Advances in Mathematics  
**Status:** Published as Vol. 12 No. 5 2016, ISSN 2347-1921, pgs 6238-6247  
**Date Published:** June 2016  
(A **paper** with four authors: **Olege Fanuel**, Aywa, Owino and Akinyi)
  
10. **Title:** 32 - Bit Cyclic Redundancy Code Polynomial  
**Publisher:** Lambert Academic Publishing  
**Status:** Published as ISBN 978-659-42415-1.

**Date Published:** July 2013

(A book author: **Olege Fanuel**)

**11. Title:** Ideals of the Polynomial Ring  $F_2^n[x] \text{ mod}(x^n - 1)$  for Error Control in Computer Applications

**Publisher:** The International Institute for Science, Technology and Education (IISTE)

**Journal:** Mathematical Theory and Modelling

**Status:** Published as IISTE Vol3 No. 7 2013, ISSN (Paper) 2224-5804(Online) 2225 0552, pgs 55-63

**Date Published:** June 2013

(A paper with four authors: **Olege Fanuel**, Aywa, Rao, Wanambisi)

### Thesis Examination

1. Vashti Bernice Acheng', M.Sc. (Pure Mathematics) Thesis, "Norm attaining operators in Frechet Spaces" Kaimosi Friends University (KAFU), 2022.
2. Agala Violet Khavere, M.Sc. (Pure Mathematics) Thesis, "On the Zero Divisor and Caley Graphs of Some Classes of the 2-Radical Index of Nilpotence Finite Local Rings" Masinde Muliro University of Science and Technology, 2022.
3. Hillary Amonyela Isabu, M.Sc. (Pure Mathematics) Thesis, "On characterization of compact operators and their spectral properties on Hilbert space" Masinde Muliro University of Science and Technology, 2022.
4. Mengich Jepkemei Beatrice, M.Sc. (Pure Mathematics) Thesis, "Certain Geometric Aspects of a class of almost contact structures on a smooth metric manifold", Masinde Muliro University of Science and Technology, 2019.
5. Joseph Wafula Wenani, M.Sc. (Pure Mathematics) Thesis, "A Characterization of a special class of normal operator matrices", Masinde Muliro University of Science and Technology, 2018.
6. Wachira Charles Muriuki, M.Sc. (Applied Mathematics) Thesis, "A Spatiotemporal Model on Transmission Dynamics of Zika Virus Disease", Masinde Muliro University of Science and Technology, 2018.
7. Nathan Oigo Mokaya M.Sc. (Applied Mathematics) Thesis, "Modelling the Dynamics of Radicalization ideologies in vulnerable homogeneous population with intervention", Masinde Muliro University of Science and Technology, 2018.

### Seminars Attended

1. Global Leadership Training, Kisumu Leadership Summit 3<sup>rd</sup> to 4<sup>th</sup> October, 2022.
2. Transition, change and impact awareness training for implementers (Based on SO9001:2015), MMUST 30<sup>th</sup> August, 2018.
3. Performance contracting awareness, MMUST 9<sup>th</sup> November, 2015

## Supervision of Post Graduate Students

1. **Alosa Phillis**, *Analyticity of the resolvent function and spectral radius of a normal operator*, MSc Thesis, (graduated on 9/12/2022 see pg 121 of 18<sup>th</sup> grad. book-let).
2. **Alwanyi Kevin Shilaviga**, *Characterisation and Calculus of Orthogonal Projectors*, MSc Thesis, (graduated on 9/12/2022 see pg 121 of 18<sup>th</sup> grad. book-let).
3. **Edwin Nalyanya Walubengo** *The Spectral analysis of Anderson's and Livingston's Graph of power four radical zero completely finite rings*, MSc Thesis, (submitted for examination).

## Research Awards

1. National Council for Science and Technology, Research Grant of Ksh. 234,000.00 for my PhD work, 2014-2017 Title: - " On the generators of codes of ideals of the Polynomial Ring  $F_2^N[X]/\langle X^N - 1 \rangle$  for Error Control".

## Community Service

- 1989- Present: member, Kenya Students Christian Fellowship  
2013- Present: Pastor, Kenya Assemblies of God Church- Lurambi  
2016 –2022: Chairman, BoM, Chavavo Secondary School  
2017- Presiding officer, IEBC  
2020- Online facilitation in the East African Teachers' Conference

## Internal Appointments

1. Course coordinator for MAT 122 for the academic year 2018/2019 with effect from 15<sup>th</sup> February, 2019.
2. 22<sup>nd</sup> August, 2018-7<sup>th</sup> September, 2018 -Acting Chairperson, Department of Mathematics, Masinde Muliro University of Science and Technology.

## Referees

1. Prof. Shem Aywa  
The Deputy Vice Chancellor (PAF)  
Kibabii University  
P.O. Box 1699-50200  
**BUNGOMA.**  
Cell Phone:
2. Prof. Maurice Owino Oduor  
The Deputy Vice Chancellor (P, R&D)  
University of Kabianga  
P.O. Box 2030-20200  
**KERICHO**  
Cell Phone:
3. Dr. Colleta Akinyi Okaka  
Senior Lecturer

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