



CURRICULUM VITAE

PROF. BERNARD MUTUKU NZIMBI

PERSONAL PROFILE

**B.Sc. (UoN, 1995), M.Sc. (UoN, 1999), M.Sc. (Syracuse Univ.-New York, 2004),
PhD (UoN, 2009)**

**School of Mathematics
College of Biological and Physical Sciences
University of Nairobi
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Confirmation

I confirm that the information contained in this curriculum vitae is correct as at April 04, 2019.

Sign: _____ Date: _____

PERSONAL DATA

Date/Place of Birth: September 21, 1971- Makueni County, Kenya.

Gender: Male.

Nationality: Kenyan.

Country of Residence: Kenya.

Marital Status: Married.

ACADEMIC SPECIALIZATION

Pure Mathematics

- Mathematical Analysis
- Operator Theory

RESEARCH AREAS AND INTERESTS

- Functional Analysis and Operator Theory
- Differential Geometry and applications of operators in differential geometry.

I am currently working on Mathematical Operator Theory in Hilbert spaces, frames, wavelets theory and applications in cryptography, telecommunications (signal processing), image processing and systems control.

EDUCATION QUALIFICATIONS

- PhD in Pure Mathematics, University of Nairobi, Kenya, 2009.
Thesis title: “*On the Direct Sum Decomposition and Canonical Factorization of Operators in Hilbert Spaces*”.
- M.Sc. (Mathematics), Syracuse University, New York, USA, 2004.
- M.Sc. (Pure Mathematics), University of Nairobi, Kenya, 1999.
- B.Sc. (Mathematics with a minor in Computer Science), University of Nairobi, Kenya, 1995.

ACADEMIC POSITIONS (in reverse chronological order)

- **February 19, 2019—present:** Associate Professor of Pure Mathematics, University of Nairobi, Kenya.
- **September 2012—February 2019:** Senior Lecturer in Pure Mathematics, University of Nairobi, Kenya.
- **September 2008---September 2012:** Lecturer in Pure Mathematics, University of Nairobi, Kenya.
- **October 2001---September 2008:** Tutorial Fellow, University of Nairobi, Kenya.
- **August 2001---May 2004:** Teaching Assistant (TA), Department of Mathematics, Syracuse University, NY-USA.
- **February 2001-July 2001:** Part-time Lecturer Department of Mathematics, Catholic University of Eastern Africa (CUEA).
- **May 1996-October 1997:** Untrained (TSC) graduate high school teacher, Mii Secondary School, Makueni County.

UNIVERSITY TEACHING EXPERIENCE

✿ 2001–PRESENT: AT THE UNIVERSITY OF NAIROBI,

- I teach a variety of undergraduate courses including Basic Mathematics, Introduction to Analysis, Calculus, Advanced Calculus, Introduction to Algebra, Linear Algebra I and II, Real Analysis I and II at the College of Biological and Physical Sciences (CBPS) and College of Humanities and Social Sciences (CHSS) at the University of Nairobi. I also teach Linear Algebra I and II to Open and Distance Learning (ODL) students.
- I teach Linear Algebra to Computer Science students at the School of Computing and Informatics (Chiromo and Kenya Science Campuses) and the School of Economics.
- I teach Functional Analysis IV to Second Year Master of Science (Pure Mathematics) students in the School of Mathematics, University of Nairobi.
- I teach Functional Analysis I to First Year Master of Science (Pure Mathematics) students in the School of Mathematics, University of Nairobi.

✿ 2001–2004: AT SYRACUSE UNIVERSITY, NY, USA

- As a Graduate Teaching Assistant I taught various courses ranging from Basic Mathematics (Algebraic Operations and Functions) to applied differential and integral Calculus and elementary probability and statistics to freshmen and sophomores at

Syracuse University. Also conducted weekly recitation sections under several Professors in Real Analysis and Linear Algebra courses. Other responsibilities included weekly office hours, homework and final examination grading(marking).

❁ 2001: AT CATHOLIC UNIVERSITY OF EAST AFRICA

- Taught Advanced Calculus, Ordinary and Partial Differential Equations to seniors (Third & Fourth year students) at Catholic University of Eastern Africa, 2001.

DEPARTMENTAL/SCHOOL/COLLEGE/ADMINISTRATIVE RESPONSIBILITIES

- Member of the Sports Committee.
- Quality Assurance Representative, CBPS.
- Member of the Student Counselling and Mentorship Committee, Year Three.
- Member of the Outreach and Service to Community Committee, Year Two.
- Chairperson, Computer Affairs and Procurement Committee.
- Brochure coordinator, Division of Pure Mathematics, School of Mathematics (tasked with regular updates of the division brochure).
- Intellectual Property Rights representative/champion, CBPS.

ACADEMIC AND PROFESSIONAL SERVICE

- External Examiner, Garissa University, November 2013-present.
- External Examiner, Maasai Mara University, May 2014-present.
- External Examiner, Jomo Kenyatta University of Agriculture and Technology (JKUAT), April 2017-present.
- External Examiner, Makerere University, September 2017-present.
- External Examiner, Chuka University, June 2018-present.
- External Examiner, University of Dar es Salaam, August 2018-present.
- Manuscript Reviewer/Referee, Kenya Journal of Sciences (A) Series, 2015- present.
- Manuscript Reviewer/Referee, Punjab University Journal of Mathematics, 2016-present.

- PhD Internal Examiner for Dr. Mutie Kavila, **Title of Thesis:** *Commutants and Spectral Properties of Operators in Hilbert Spaces*, 2013.
- PhD Internal Examiner for Dr. Stanley Kathurima Imagiri, **Title of Thesis:** *Inequalities and Spectral Properties of some classes of Operators in Hilbert Spaces*, 2014.
- Member, PhD thesis Board of Examiners for Dr. Karanja, 2014.
- Member, PhD thesis Board of Examiners for Dr. Ogik Rao, 2016.
- Member, PhD thesis Board of Examiners for Dr. Ida Orowe, 2016.
- PhD Internal Examiner for Dr. Ben Owino Obiero, **Title of Thesis:** *On the minimal resolution conjecture for the ideal of general points in the projective space P^4* , 2016.
- PhD Internal Examiner for Dr. Rugiri Peter Githara, **Title of Thesis:** *On some aspects of spectral theory of operators in Hilbert spaces*, 2017.
- PhD Internal Examiner for Peter Oyoo Maina, **Title of Thesis:** *On Weyl spectrum and Quasi-similarity of operators in Hilbert spaces*, 2017.
- MSc External Examiner for Gikunju David Muriuki (JKUAT), **Title of Thesis:** *Ranks, subdegrees and suborbital graphs of direct product of the symmetric group acting on the Cartesian product of three sets*, September 2017.
- PhD Internal Examiner for Dr. Beth Nyambura Kiratu, **Title of Thesis:** *On Weyl's spectrum for some operators in Hilbert spaces*, October 2017.
- MSc External Examiner for Mr. Emong Paul (Makerere University), **Title of Thesis:** *Analytic and Distributional Solutions for Ordinary Differential Equations*, October 2017.
- Member, PhD thesis Board of Examiners for Ms Lydia Adhiambo Musiga, 2017.
- PhD External Examiner for Josephine Gatiria Mutembei (JKUAT), **Title of Thesis:** *Positive $P_{0,1}$ Matrix Completion Problem for General Digraphs*, October 2017.
- Member, PhD thesis Board of Examiners for Ms Muthui Zipporah Wanjiku (Physics), 4th December 2017.
- Member, PhD thesis Board of Examiners for Ms Carolyne Adhiambo Ogutu,

December 13, 2017.

- PhD Internal Examiner for Dr. Isaiah Nalinya Sitati, **Title of Thesis:** *On A – self-adjoint, A – skew-adjoint operators and their extensions in Hilbert spaces*, December 14, 2017.
- MSc External Examiner for Mr. Peter Guchu Muiruri (Chuka University), **Title of Thesis:** *Norm of an elementary operator in a tensor product*, July 2018.
- MSc External Examiner for Ms Esther Kawira (Chuka University), **Title of Thesis:** *Norm of an elementary operator of finite length in a C^* –algebra*, July 2018.
- MSc External Examiner for Mr Melkiory M. Aloyce (University of Dar es Salaam), **Title of Thesis:** *Characterization of hypercyclic and chaotic operators on Fréchet spaces*, August 2018.
- MSc External Examiner for Ms Gowele Jesline Elieza (University of Dar es Salaam), **Title of Thesis:** *Investigation on the structure of Lipschitz-Free Banach space*, October 2018.
- PhD Internal Examiner for Mr Muturi Edward Njuguna, **Title of Thesis:** *Properties of function spaces defined on sets of continuous functions on bitopological spaces*, December 2018.
- PhD Internal Examiner for Mr Loyford Njagi, **Title of Thesis:** *On the application of operator- and group- theoretic concepts in signal processing and cryptography*, February 2019.

COMMUNITY SERVICE

- Board Member, Kilili Secondary School 2012-present.

AWARDS

May 2005: DAAD (Deutscher Akademischer Austauschdienst) In-Country Scholarship for PhD studies.

August 2001-May 2004: Syracuse University Teaching Assistantship

October 1997: University of Nairobi Scholarship.

October 1990: Government of Kenya Scholarship.

COMPUTER SKILLS

- Proficient in Turbo-Pascal programming, Mathematica, Matlab, Maple, MuPAD.
- Experienced in typesetting in TEX and LATEX.
- Expert in HTML and Java web design.
- Advanced use of MS Office: MS Word and MS Excel.

LANGUAGES SPOKEN/ UNDERSTOOD

- Fluent in English (Both American and British).
- Fluent in Kiswahili and Kikamba (Mother tongue)

POSTGRADUATE SUPERVISION

MSc SUPERVISION

Completed MSc.

So far I have supervised the following Master of Science students to completion:

1. Eric Gitonga Muriithi, M.Sc. (Pure Mathematics, Chuka University), 2018: Thesis: “*Metric Equivalence as an almost similarity relation*”.
2. Gitonga Wilfred Gikunda, M.Sc. (Pure Mathematics, UoN), 2018: Thesis: “*On some equivalence of operators and topology of invariant subspaces*”.
3. Ogendi Arvince Ochieng, M.Sc. (Pure Mathematics, UoN) 2017: Thesis: “*On Hilbert space frames and their applications*”.
4. Otae Lamech Wasonga, M.Sc. (Pure Mathematics, UoN) 2017: Thesis: “*On the numerical range of some classes operators*”.
5. Kipkemoi Towett Samson, M.Sc. (Pure Mathematics, UoN) 2016: Thesis: “*On almost similarity and related equivalence relations of operators in Hilbert spaces*”.
6. Rose Kemunto Masisa, M.Sc. (Pure Mathematics, UoN) 2015: Thesis: “*On reducibility and quasi-reducibility of operators in Hilbert spaces*”.

7. Irene Mumbua Muteti, M.Sc. (Pure Mathematics, UoN) 2014: Thesis: “*On new equivalences of operators in Hilbert spaces*”.
8. Murutu Ali, M.Sc. (Pure Mathematics, UoN) 2012: Thesis: “*On some transforms of linear operators in Hilbert spaces*”.
9. Kiratu Beth Nyambura, M.Sc. (Pure Mathematics, UoN) 2011: Thesis: “*On the spectral properties of 2-isometric and related operators on a Hilbert space*”.
10. Sitati Isaiah Nalianya, M.Sc. (Pure Mathematics, UoN) 2011: Thesis: “*On the equivalence of some operators in Hilbert spaces*”.
11. Mwenda Edwin, M.Sc. (Pure Mathematics, UoN) 2009: Thesis: “*Distribution of spectra in a direct sum decomposition of some classes of operators*”.

Ongoing MSc Supervision

12. Atuya B. Lydia, (Pure Mathematics, UoN), Thesis: “*Finite frames for Hilbert spaces*”, Expected: September 2019.

PHD SUPERVISION

Completed PhD

1. Kiratu Beth Nyambura, Thesis: “*On Weyl’s spectrum for some classes of operators in Hilbert spaces*”, **Affiliation:** Technical University of Kenya (TUK), 2017.
2. Isaiah Nalianya Sitati, Thesis: “*On A-self-adjoint, A-skew-adjoint operators and their extensions in Hilbert spaces*”, **Affiliation:** Garissa University (GU), 2017.
3. Loyford Njagi Leonard, Thesis: “*On the application of operator- and group- theoretic concepts in signal processing and cryptography*”, **Affiliation:** Meru University of Science and Technology (MUST) , 2015- present, Thesis submitted for examination in January 2019, Thesis defense expected in February 2019 and graduation in September 2019.

Ongoing PhD

4. Edwin Mwenda, Thesis: “*Spectrum in a direct sum decomposition of operators in a Hilbert space*”, **Affiliation:** Chuka University (CU), 2015- present; Expected in December, 2019.
5. Irene Mumbua Muteti, Thesis: “*On invariant and hyper-invariant subspaces in Hilbert spaces*”, **Affiliation:** University of Nairobi (UoN)/Keriri Women’s University, 2015- present; Expected in December, 2019.

6. Stephen Waihenya Kamau, Thesis: "*On the intersection and inclusions of some classes of operators in Hilbert spaces*", **Affiliation:** University of Nairobi (UoN)/Embu University, 2015- present; Expected in December, 2019.
7. Otae Lamech Wasonga, *On range orthogonality of elementary operators in normed spaces*, **Affiliation:** Jaramogi Oginga Odinga University of Science and Technology (Joust), December 2017- present.

Prospective PhD Students

1. Murutu Ali, *On the spectral theory of some operator transforms in Hilbert spaces*, Proposal completed, awaiting defense, 2019.
2. Ogendi Arvince Ochieng, "*On equivalence relations, ortho-decomposability and the Plücker metric on finite dimensional Grassmannian Hilbert space frames*", Proposal stage.

RESEARCH AWARDS/FUNDS ATTRACTION/TRAVEL AWARD

1. **Gandhi Smarak Nidhi Fund (2013-Present)** of **KSH. 150,000**-for my PhD student Beth Nyambura Kiratu , Thesis: "*Weyl's spectrum for some classes of operators in Hilbert spaces*",
2. **Southern Africa Mathematical Sciences Association (SAMSA)- Kovalevskia Research Award (2014)** of **US DOLLARS 2500**- for my PhD student Beth Nyambura Kiratu, Thesis: "*Weyl's spectrum for some classes of operators in Hilbert spaces*". This award was received on 26th November at Victoria Falls, Zimbabwe.
3. **National Research Fund (NRF)-2017- KSH 1.2 MILLION** -for my PhD student Sitati Isaiah Nalinya, Thesis: "*On A -self adjoint, A -skew adjoint operators and their extensions in Hilbert Spaces*"- amount not yet known.
4. **Open Arms Grant-2018- BRL 7,800 (BRAZILIAN REALS)**(approx. **KSH 275,000**)- Travel grant to attend the International Congress of Mathematicians (ICM) 2018 August 1-9, 2018, Rio de Janeiro, Brazil.

RESEARCH PROJECTS

Conceived Projects

- **February 2018**- submitted a multi-disciplinary research grant application to National Research Fund, in collaboration with seven other researchers from other Kenyan universities entitled "*Imaging processors and data security system for forensic analysis based on new fully homomorphic mathematical encryption schemes*" and has a total

proposed budget of Ksh. 19,798,900.00 for three years. The outcome of the application has not yet been decided. According to information from NRF, this proposal is among those that have been subjected to further evaluation by a panel of experts. Among other vision 2030 benefits from this project, we are planning to fund and train six (6) MSc. and six (6) PhD students, if our application is successful.

PUBLICATIONS

Research Papers presented in conferences

1. Eric Gitonga, Sammy Musundi and Bernard Nzimbi, *Metric equivalence as an almost similarity property*, The 4th Strathmore International Mathematics Conference, 22nd June 2017.
2. Isaiah N. Sitati, Bernard M. Nzimbi, Stephen W. Luketero and Jairus M. Khalagai, *On A -self-adjoint, A -unitary operators and quasiaffinities*, The 4th Strathmore International Mathematics Conference, 22nd June 2017.
3. B. N. Kiratu, B.M. Nzimbi and S.W. Luketero, *Browder's theorem for totally posinormal operators*, Banach Spaces and Operator Theory Conference, Faculty of Mathematics and Computer Science, Adam Mickiewicz University, Poznan, Poland 5th July 2017.
4. B. N. Kiratu, B. M. Nzimbi and S. W. Luketero, *a -Browder's theorem for conditionally totally posinormal operators*, Banach Spaces and Operator Theory Conference, Faculty of Mathematics and Computer Science, Adam Mickiewicz University, Poznan, Poland 5th July 2017.
5. Eric Gitonga, Sammy Musundi and Bernard Nzimbi, *Metric equivalence as an almost similarity property*, The Fourth International Research Conference, 18th to 20th October 2017.
6. Isaiah N. Sitati, Bernard M. Nzimbi, Stephen W. Luketero and Jairus M. Khalagai, *Remarks on A -skew-adjoint, A -almost similarity equivalence and other operators in Hilbert spaces*, The Fourth International Research Conference, 18th to 20th October 2017.

Research Papers in Refereed Journals since Last Promotion

Published

1. L. Njagi, B. M. Nzimbi and S. K. Moindi, *A note on isomorphy and unitary isomorphy of Hilbert space frames*, International Journal of Mathematics Trends and Technology(IJMTT), Vol. 65, Issue 1, 15-30, January 2019.
2. B. M. Nzimbi, *A note on some equivalences of operators and topology of invariant subspaces*, Mathematics and Computer Science Journal, 3(5): 102-112, 2018.
3. L. Njagi, B. M. Nzimbi and S. K. Moindi, *On analysis and synthesis operators and characterization of the synthesis matrix of a frame in terms of the frame operator*, Journal of Advance Research in Mathematics and Statistics, 5, Issue 12, 1-10, 2018.
4. L. Njagi, B. M. Nzimbi and S. K. Moindi, 3. *On finite dimensional Hilbert space frames, dual and normalized frames and pseudo-inverse of the frame operator*, Journal of Advance Research in Mathematics and Statistics, 5, Issue 11, 1-14, 2018.
5. B. M. Nzimbi, B. N. Kiratu and S. W. Luketero, *On Some n -involution and k -potent operators on Hilbert Spaces*, Mathematics and Computer Science Journal, 2(6):79-88, 2017.
6. Eric M. Gitonga, Sammy W. Musundi and Bernard M. Nzimbi, *Metric equivalence as an almost similarity property*, Journal of Progressive Research in Mathematics(JPRM), Vol. 12, Issue 4, 2030-2038, 2017.
7. B. N. Kiratu, B. M. Nzimbi and S. W. Luketero, *Browder's theorem for totally posinormal operators*, Researchjournali's J. of Math, Vol. 4, No.2 June 2017.
8. B. N. Kiratu, B. M. Nzimbi and S. W. Luketero, *a-Browder's theorem for conditionally totally posinormal operators*, Researchjournali's J. of Math, Vol. 4, No.2 June 2017.
9. Isaiah N. Sitati, Bernard M. Nzimbi, Stephen W. Luketero and Jairus M. Khalagai, *Remarks on A -skew-adjoint, A -almost similarity equivalence and other operator in Hilbert space*, Pure and Applied Math. Journal, 6(3), 101-107, 2017.

10. Isaiah N. Sitati, Bernard M. Nzimbi, Stephen W. Luketero and Jairus M. Khalagai, *On A -self-adjoint, A -unitary operators and quasiaffinities*, Mathematics and Computer Science Journal, 1(3), 56-60, 2016.
11. Isaiah N. Sitati, Sammy W. Musundi, Bernard M. Nzimbi and Kikete W. Dennis, *A note on quasi-similarity of operators in Hilbert spaces*, International Journal of Mathematical Archives, 6(7), 2015, 49-54.
12. Loyford Njagi, Nzimbi B. M. and Mwenda Edwin, *Subdegrees and suborbital graphs of symmetric groups S_n ($n = 3, 4, 5$) acting on unordered pairs*, Global Educational Research Journal, Vol. 3(7), 2015, 333-345.
13. E. Mwenda, S. W. Musundi, B. M. Nzimbi, V. N. Marani and L. Njagi, *Distribution of spectrum in a direct sum decomposition of operators into normal and completely non-normal operators*, International J. of Modern Mathematical Sciences, Vol. 11, Issue 3, 2014, 118-124.
14. Musundi Sammy Wabomba, Sitati N. Isaiah, Nzimbi B. M. and Murwayi A. Lunani, *On almost similarity operator equivalence relation*, IJRRAS, 15(3), June 2013, 293-299.
15. B. M. Nzimbi, G. P. Pokhariyal and S. K. Moindi, *A note on metric equivalence of some operators*, Far East Journal of Mathematical Sciences (FJMS), Vol. 75, Issue 2, 2013, 301-318.
16. B. M. Nzimbi, G. P. Pokhariyal and S. K. Moindi, *A note on A -self-adjoint and A -skew-adjoint operators and their extensions*, Pioneer Journal of Mathematics and Mathematical Sciences (PJMMS), Vol. 7, Issue 1, 2013, 1-36.
17. S. K. Moindi, G. P. Pokhariyal and B. M. Nzimbi, *W_2 -Recurrent LP-Sasakian manifold*, Universal Journal of Mathematics and Mathematical Sciences (UJMMS), Vol. 3(2), 2013, 119-128.

Accepted and In Press

18. L. Njagi, B. M. Nzimbi and S. K. Moindi, *On pseudo-inverses and duality of frames in Hilbert spaces*, International Journal of Mathematics and its Applications (IJMAA), accepted 19 January 2019, in press.
19. B. M. Nzimbi, *Weyl and Browder Theorems for operators with or without SVEP at zero*, Mathematics and Computer Science Journal, accepted March 2018, in press to appear in February Issue 2019.

20. B. M. Nzimbi, *On unitary quasi-equivalence of operators*, Pure and Applied Mathematics Journal, accepted July 2018, in press to appear in February Issue, 2019.
21. B. M. Nzimbi, *A note on α -isometries and self-similarity of operators*, Pure and Applied Mathematics Journal, accepted March 2018, in press to appear in February Issue 2019.

Accepted

22. B. M. Nzimbi, B.N. Kiratu and S. W. Luketero, *Characteristic functions for some contraction operators*, Far East Math Journal (FJMS), accepted July 15, 2017.
23. B. M. Nzimbi, S. W. Luketero, I. N. Sitati, S.W. Musundi and E. Mwenda, *On almost similarity and metric equivalence of operators*, Pioneer Journal of Mathematics and Mathematical Sciences (PJMMS), accepted 14th June, 2016.
24. B. M. Nzimbi, B.N. Kiratu, I. N. Sitati and S.T. Kipkemoi, *Remarks on the Murray-von Neumann equivalence of projections*, International Journal of Pure and Applied Mathematics (IJPAM), accepted 6th June, 2016.
25. S. K. Moindi, G. P. Pokhariyal and B. M. Nzimbi, W_4 -curvature tensor on *A-Einstein Sasakian manifold*, Global Journal of Theoretical and Applied Mathematical Sciences (GJTAMS), accepted in March 2013, to appear.

Submitted

26. L. Njagi, B. M. Nzimbi and S. K. Moindi, *On application of dual frames in inverting Hilbert space operators*, Linear Algebra and its Applications, submitted November 2018.
27. L. Njagi, B. M. Nzimbi and S. K. Moindi, *Algebraic variety of frames with a prescribed frame operator and frame vector*, Journal of Mathematical Analysis and Applications, submitted November 2018.
28. L. Njagi, B. M. Nzimbi and S. K. Moindi, *A note on frame operator of a full-spark frame: frame redundancy, erasure robustness and resilience*, Journal of Approximation Theory, submitted November 2018.
29. B. M. Nzimbi, *On peripheral spectrum of operators*, Pure and Applied Mathematics Journal, submitted November 2018.

In Preparation

30. L. Njagi, B. M. Nzimbi and S. K. Moindi, *On finite frames with a given spectrum*, paper in preparation.
31. B. M. Nzimbi, S. K. Waihenya and L. Njagi, *On commutator relations of some operators and their applications*, paper in preparation.
32. B. M. Nzimbi, Mile Kitheka and S. K. Moindi, *Some remarks on the Aluthge and Duggal and related transforms of some classes of operators in Hilbert spaces*, paper in preparation.
33. B. M. Nzimbi, E. Mwenda, I. M. Muteti and S. K. Waihenya, *Topological analysis of spectra and pseudo-spectra of some classes of operators*, paper in preparation.
34. B. M. Nzimbi and S. K. Waihenya, *On c -quasinormal and related classes of non-normal operators*, paper in preparation.
35. B. M. Nzimbi, I. N. Sitati and E. Mwenda, *Asymptotic similarity of operators and quasi-nilpotent equivalence of some Hilbert space operators*, paper in preparation.
36. B. M. Nzimbi, E. Mwenda, Musundi S. and Sitati, I. N., *A note on generalized projections*, paper in preparation.
37. B. M. Nzimbi, E. Mwenda, Musundi S. and Kiratu, B. N., *Similarity operators and automorphisms in Hilbert spaces*, paper in preparation.
38. B. M. Nzimbi, S. W. Luketero and I. M. Muteti, *On the stabilizer of an Hilbert space operator*, paper in preparation.
39. B. M. Nzimbi, S.W. Luketero, and B. N. Kiratu, *On jointly normal operators*, paper in preparation.
40. B. M. Nzimbi, S. W. Luketero, I. M. Muteti and S. K. Waihenya, *On dilation operators*, paper in preparation.

Books/Monographs Published/Written/Prepared

1. B.M. Nzimbi, *Linear Algebra II*: B.Ed. Science ODL Programme (December, 2012).
This is a six-chapter textbook, which has been reviewed and adopted as the main textbook for SMA 204: Linear Algebra II for B.Sc. and B.Ed.(Science) ODL instructors and students at the University of Nairobi.
2. B. M. Nzimbi, SMA 101: *Calculus I*, (2015).
3. B. M. Nzimbi, SMA 203: *Linear Algebra I*: B.Ed. Science ODL Programme (2011).
4. B. M. Nzimbi, SMA 206: *Introduction to Analysis*, (2009).
5. B. M. Nzimbi, SMA 301: *Real Analysis I*, (2011).
6. B. M. Nzimbi, SMA 502: *Functional Analysis I*, (2015).
7. B. M. Nzimbi, SMA 610: *Functional Analysis IV*, (2010).
8. B. M. Nzimbi, XEQ 209: *Linear Algebra*, (2014).
9. B. M. Nzimbi, TMA 201: Advanced Calculus

Books/Monographs under preparation

I am involved in writing the following E-textbooks under the 2019 University of Nairobi E-textbook Programme.

1. SMA 201: *ADVANCED CALCULUS* (Book Title: Advanced Calculus for the Sciences and Humanities: A Simplified Approach) - Lead Author.
2. SMA 303: *GROUP THEORY*-Second Author.

CONFERENCES, WORKSHOPS AND TRAINING ATTENDED/TO ATTEND

- **8 -9TH August, 2018-** The 2018 International Congress of Mathematicians, Rio de Janeiro, Brazil.
- **23RD -24TH November, 2017—PhD Supervision**, sponsored by the University of Nairobi and the Consortium for Advanced Research Training in Africa (CARTA) at Gracia Gardens-Dennis Pritt Road, Nairobi. Main aim was generation of quality PhD graduates capable of filling the gap in research expertise in all disciplines with the view of creating a critical mass of globally competitive African researchers.

- **19TH June, 2017—7TH July, 2017, ICTP-EAUMP School on Modern Functional Analysis**, hosted by the School of Mathematics, University of Nairobi at Kenya School of Government, Lower Kabete. I played the role of local organiser and participant.
- **9TH May, 2017**, One-day training on **Postgraduate Tracking**, at the School of Mathematics, University of Nairobi.
- **9TH May, 2017**, One-day training on **Innovation Commercialization for inventors**, Central Catering Unit (CCU), University of Nairobi.
The training provided information on innovation commercialization for researchers who have disclosed their research output for patent protection. The purpose of the training was to initiate the commercialization process for the disclosed inventions.
- **5TH May, 2017**, One-day training on **PhD Supervision** at the School of Computing, University of Nairobi. The purpose of the training was to focus on challenges, stages in PhD supervision, supervisor expertise, roles and responsibilities, art of supervision and ethics, tools and presentation of research and conversion of research into publication.
- **25TH February, 2016**, One-day training on **Intellectual Property for IP Committee, IP champions, Principal Technologists and Selected Researchers**, Central Catering Unit (CCU), University of Nairobi.
The training provided information on Intellectual Property: how to identify, how to protect and commercialize Intellectual Property.
- **February, 2016**, Training on **TURNITIN package**, ICT lab, Chiromo Campus.
- **July 17, 2013 –July 18,2013**, Two-day training on **Intellectual Property Rights Sensitization for Heads of Departments, Thematic Unit Heads, College Registrars, IP Champions, Student Leaders and other Stakeholders** at the Central Catering Unit (CCU), University of Nairobi. This training was conducted by KIPi/IPMO, KECOBO and KePHIS. I attended this training as the IP Champion representing the School of Mathematics.
- **September 6, 2013- September 7, 2013**, Two-day **Technology & Innovation Support Centre Training**, at Garden Hotel, Machakos. This training was organised by Kenya Industrial Property Institute (KIPI) in collaboration with the University of Nairobi.
- **5TH June, 2013**, Sensitization training for **University Management Board, Deans, Directors and other Stakeholders on UoN Intellectual Property Policy**, Central Catering Unit (CCU), University of Nairobi.

- **22ND-----25TH August, 2012, Nelson Mandela African Institute of Science and Technology, Arusha** 2nd EAUMP conference.
- **5TH---6TH May, 2011, KIE Nacece Resource Centre, Nairobi**
Training Workshop for Kenya Antiplagiarism Solution Theme: Promoting Original Writing in the Digital Era: “Eliminating Internet Copy and Paste habits This training was conducted by IEEE and TurnitinKenya and sponsored by the Ministry of Higher Education, Kenya ICT Board and Commission for Higher Education.
- **23RD--- 27TH August, 2010, National University of Rwanda, Butare, Rwanda**
International Modeling Week. This workshop was hosted by the National University of Rwanda (NUR) and sponsored by SIDA (Swedish Development Agency) and Linköping University, Sweden. Some of the tasks I engaged in were to examine M.Sc. dissertations for Pure Mathematics and Applied Mathematics of eleven students at the Department of Applied Mathematics at NUR.
- **17TH--- 29TH August, 2009 University of Dar es salaam, Dar es salaam, Tanzania**
Attended *Eastern Africa School on Linear Algebra* hosted by the Department of Mathematics, University of Dar es salaam in conjunction with the Eastern Africa Universities Mathematics Programme (EAUMP), The Abdus Salam International Centre for Theoretical Physics (ICTP) and the International Science Programme (ISP).
- **2ND---14TH December, 2008 Bandari College , Mombasa, Kenya**
Attended *The Second 2008 Eastern Africa School on Linear Algebra: From Bases to the Google Algorithm*, hosted by the School of Mathematics, University of Nairobi in conjunction with the Eastern Africa Universities Mathematics Programme (EAUMP), The Abdus Salam International Centre for Theoretical Physics (ICTP) and the International Science Programme (ISP).
- **17TH--- 29TH March, 2008 Makerere University, Kampala, Uganda**
Attended *The First 2008 Eastern Africa School on Linear Algebra: From Bases to the Google Algorithm*, hosted by the Department of Mathematics, Makerere University in conjunction with the Eastern Africa Universities Mathematics Programme (EAUMP), The Abdus Salam International Centre for Theoretical Physics (ICTP) and the International Science Programme (ISP).
- **11TH June---22ND June, 2007 University of Dar es salaam, Dar es salaam, Tanzania**
Attended and successfully completed a course on counting points in polytopes: *The Fourth Eastern Africa School on Algebra, Geometry and Analysis: Counting integer points in Polytopes*, hosted by the Department of Mathematics, University of Dar es Salaam in conjunction with The Eastern Africa Universities

Mathematics Programme (EAUMP) and The Abdus Salam International Centre for Theoretical Physics (ICTP).

- **22ND November---26TH November, 2006 KWS Training Institute (KWSTI), Naivasha, Kenya**
Attended a School of Mathematics workshop on teaching of mathematics and mathematics research in Naivasha.
- **19TH June—30TH June, 2006 Makerere University, Kampala, Uganda**
Participated in the *Third East-African School on Topics in Algebra, Geometry and Combinatorics*, hosted by the Department of Mathematics, Makerere University in conjunction with The Eastern Africa Universities Mathematics Programme (EAUMP), The Abdus Salam International Centre for Theoretical Physics (ICTP) and the International Science Programme (ISP).
- **4TH July—15TH July, 2005 Bandari College, Mombasa, Kenya**
Successfully participated and completed a course on *Commutative Algebra Combinatorics in Representation Theory: School of Commutative Algebra and Combinatorics in Representation Theory*, hosted by the School of Mathematics, University of Nairobi in conjunction with The Eastern Africa Universities Mathematics Programme (EAUMP) and The Abdus Salam International Centre for Theoretical Physics (ICTP).
- **April, 2004 Syracuse University, NY USA** –Attended the *29TH Annual New York State Regional Graduate Mathematics conference*.
- **April, 2003 Syracuse University, NY USA** –Attended the *28TH Annual New York State Regional Graduate Mathematics conference*.
- **April, 2002 Syracuse University, NY USA** –Attended the *27TH Annual New York State Regional Graduate Mathematics conference*.

PROFESSIONAL SOCIETIES MEMBERSHIP

- Member of the American Mathematical Society (AMS)
- Member of the Syracuse University Alumni Association (SUAA)
- Member of the Nairobi University Alumni Association (NUAA)
- Member Kenya DAAD Scholars Association (KDSA).
- Member Mathematics Association of Kenya (MAK).

HOBIES AND INTERESTS

- Reading
- Travelling

ACADEMIC REFEREES

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Current Position: **Full Professor and Director, School of Mathematics.**

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Current Position: **Full Professor and Head, Pure Mathematics Division.**

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Current Position: **Full Professor and Head, Applied Mathematics Division.**