



## **PROF. IRERI NTHIGA KAMUTI**

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Kenya

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### **PERSONAL INFORMATION**

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NATIONALITY	:	Kenyan
PLACE OF BIRTH	:	Manyatta, Embu
DATE OF BIRTH	:	28 <sup>th</sup> February 1956
LANGUAGES	:	English / Kiswahili / Kiambu
GENDER	:	Male
MARITAL STATUS	:	Married

### **SUMMARY OF PROFILE**

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Professor Ireri Kamuti is an Associate Professor in the Department of Mathematics and Actuarial Science, Kenyatta University. After obtaining a B.Ed. and an M.Sc. from the University of Nairobi, I proceeded to the University of Southampton where I obtained a Ph.D. in Pure Mathematics.

I have been an employee of Kenyatta University since 1984 and as an Associate Professor of Mathematics since 2015. My research interests are mainly Group Theory and its applications to areas such as Combinatorics and Coding Theory. I have published about 28 papers and successfully supervised about 13 Ph.D. students and 30 M.Sc. students. Currently, I have several

M.Sc. and Ph.D. students under my supervision and I am in the process of publishing a book in Linear Algebra.

## **EDUCATION**

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Ph.D. (Pure Mathematics), (1993), University of Southampton

M.Sc. (Pure Mathematics), (1984), University of Nairobi

B.Ed. (1st class, 1981), University of Nairobi

EAACE (1977), Shimo-la-Tewa School, Mombasa

EACE (1975), Kangaru School, Embu

CPE (1971), Kirigi Primary School, Embu

## **FELLOWSHIPS / INTERNSHIP**

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1985 – 1988 (Tutorial Fellow), Kenyatta University

1984 – 1985 (Graduate Assistant), Kenyatta University

May 1980 – July 1980 (Teaching Practice Attachment), Kamama Boys

Oct. 1979 – Nov. 1979 (Untrained Teacher), Nkabune Girls

Jan. 1978 – Sept. 1978 (Untrained Teacher), Nguvio Boys

## **WORK EXPERIENCE**

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Nov. 2015 to date (Associate Professor), Kenyatta University

June 2010 to Nov. 2015 (Senior Lecturer), Kenyatta University

1988 – June 2010 (Lecturer), Kenyatta University

July 1984 – Nov. 1984 (Graduate Teacher), Siakago Boys

July 1981 – Nov. 1981 (Graduate Teacher), Siakago Boys

## **ADMINISTRATIVE RESPONSIBILITIES**

2012 to date, Teaching Practice Area Coordinator – Mwingi / Kitui Zone  
6th June – 3rd July 2012 Acting Chairman, Mathematics Department  
2004 to June 2014, Chairman Departmental Board of Postgraduate Studies  
2004 to June 2014, Member of School Board of Postgraduate Studies  
2015 to date, Academic advisor of 3<sup>rd</sup> and 4<sup>th</sup> years  
2000 – 2004, Member of School Board of Undergraduate Studies

## **POSTGRADUATE SUPERVISION**

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### **Ongoing Supervisions**

#### **1. Ph.D.**

- i. J. O. Obong'o; Cycle Indices of Finite Permutation Groups (Ph.D. Thesis, K.U.).
- ii. S. K. Kibet; Ranks and Subdegrees of Frobenius Groups and associated Suborbital Graphs (Ph.D. Thesis, KU.)

#### **2. M.Sc.**

- i. J.K. Tanui; Subdegrees and Suborbital Graphs of Symmetry Groups of Platonic Solids Acting on the Edges of their respective solids (M.Sc. Project, K.U.)
- ii. S.N. Njuguna; Extensions of  $\mathbb{Q}$  whose Galois Groups are isomorphic to groups of order twelve (M.Sc. Project KU.)
- iii. D. Kiende; Cycle Indices of Cyclic and Dihedral Groups acting on Diagonals of a Regular  $n$ -gon and  $r$ -element subsets of the set  $X = \{1, 2, \dots, n\}$  (M.Sc. Project, KU.)
- iv. Siali Maxwell Agwanda; Ranks and Subdegrees of Finite Groups (M.Sc. Project, K.U.)

### **Successful Supervisions**

#### **1. Ph.D.**

- i. G.M. Ngovi; Derivation of cycle Index Formulas of Semidirect Product Groups (Ph.D. Thesis, KU, 2020).
- ii. L.K. Rukaria; Codes, Designs and Graphs obtained from some Projective Symplectic Groups (Ph.D. Thesis, Kibabii University, 2019).
- iii. P.K. Mwangi; Ranks, Subdegrees, Cycle Indices and Structures associated with the action of  $PSL(2, q)$  and  $PGL(2, q)$  on the cosets of their subgroups (Ph.D. Thesis, KU, 2019).
- iv. R.W. Gachogu; Ranks, Subdegrees and Suborbital Graphs of Finite Permutation Groups. (Ph.D. Thesis, Egerton University, 2019)
- v. F.O. Odondo; Suborbital Graphs of the Groups  $C_n, D_n$  and Up and Graphs whose Automorphism Groups contain the Permutation Groups  $C_n$  and  $D_n$  (Ph.D. Thesis, KU, 2018)
- vi. R. K. Gachimu; Cycle Indices and Suborbital Graphs of the Alternating Group  $A_n$  Acting on Ordered and Unordered r-element Subsets (Ph.D. Thesis, J.K.U.A.T., 2016)
- vii. L. N. Kariuki; Implementation of a Modified Processi Algorithm to Compute Covariants of Binary Forms of upto Degree Five and their Relations (Ph.D. Thesis, K.U., 2016)
- viii. S. K. Rotich; Cycle Indices, Subdegrees and Suborbital Graphs of  $PGL(2, q)$  Acting on the Cosets of its Subgroups (Ph.D. Thesis, K.U., 2016).
- ix. F. B. Magero; Cycle Indices, Ranks, Subdegrees and Suborbital Graphs of  $PSL(2, q)$  Acting on the Cosets of its Subgroups (Ph.D. Thesis, K.U., 2015).
- x. M. R. Kangogo; Ranks and Subdegrees of the Cyclic Group, the Dihedral Group and the Affine Group and Associated Suborbital Graphs (Ph.D. Thesis, K.U., 2015).
- xi. L. N. Nyaga; Action of Symmetric Group  $S_n$  on Unordered r-element Subsets and Associated Suborbital Graphs (Ph.D. Thesis, 2012, J.K.U.A.T.).
- xii. L. N. Njuguna; Investigating Sedenion Extension Loops and Frames of Hypercomplex Numbers (Ph.D. Thesis, 2012, K.U.).
- xiii. J. K. Rimberia; Ranks and Subdegrees of the Symmetric Group  $S_n$  Acting on Ordered r-element Subsets (Ph.D. Thesis, 2011, K.U.).

## 2. M.Sc.

- i. S.M. Kimathi; Extensions of the field of rational numbers whose Galois group is isomorphic to a group of order eight. (M.Sc. Project, KU; 2018)
- ii. I.O. Abello; Properties of Unit Group  $U_p$  acting on Unordered and ordered  $r$  –element subsets of the set  $\mathbb{Z}_p \setminus \{0\}$ . (MSc. Project, KU, 2018).
- iii. F. Komu; On the Cycle Indices of the Cyclic Group and Dihedral Groups acting on the Cartesian Product of  $X$ . (M.Sc. Project, KU, 2018)
- iv. G.W. Kivunga; Derivation of the Cycle Index Polynomial of  $S_n^r$  (M.Sc. Project, KU, 2018)
- v. R. N. Kimanga; Some Properties of the Dihedral Group  $D_n$  Acting on Ordered and Unordered  $r$ -element Subsets from the Set  $X = \{1, 2, \dots, n\}$  (M.Sc. Project, 2016, K.U.).
- vi. A. N. Githuka; Properties of the Cyclic Group  $C_n$  Acting on Ordered and Unordered  $r$ -element Subsets from the Set  $X = \{1, 2, \dots, n\}$  (M.Sc. Project, 2015, K.U.).
- vii. V. Mwai; Properties of Suborbital Graphs of  $C_n$  and  $D_n$  (M.Sc. Thesis, 2015, J.K.U.A.T.).
- viii. G. N. Muthoka; Cycle Indices of Some Actions of the Dihedral group  $D_n$  (M.Sc. Project, 2014, K.U.).
- ix. F. O. Odondo; Graphs whose Automorphism Groups contain  $D_n$  or  $C_n$  (M.Sc. Project, 2013, K.U.).
- x. C. N. Macharia; Actions of the Dihedral Group  $D_n$  and the Corresponding Suborbital Graphs (M.Sc. Project, 2012, K.U.).
- xi. R. K. Gachimu; Relationship between Prime Factors of a Number and its Categorization as either Friendly or Solitary (M.Sc. Thesis, 2012, J.K.U.A.T.).
- xii. J. M. Mokami; Properties of Actions of Group of Symmetries of Regular Solids (M.Sc. Project, 2011, K.U.).
- xiii. Betty Chepkorir; Some Properties of Rank 3 Groups of Degree  $k^2 + 1$  (M.Sc. Project, 2010, K.U.).
- xiv. Milikah Wangeci; Some Properties of Uniprimitive Groups of Degree  $3p$  (M.Sc. Project, 2010, K.U.).
- xv. L. L. Njagi; Ranks, Subdegrees and Suborbital Graphs of the Symmetric Group  $S_n$ , Acting on Ordered and Unordered Pairs (M.Sc. Project, 2009, K.U.).

- xvi. L. M. Siro; Properties of Some Actions of the Symmetric Group  $S_n$  and Associated Combinatorial Formulas and Structures (M.Sc. Project, 2009, K.U.).
- xvii. S. K. Kibet; Subdegrees of the Symmetric Group  $S_n$  ( $n \leq 7$ ) and Associated Suborbital Graphs (M.Sc. Project, 2009, K.U.).
- xviii. E. W. Kiburu; Group Action on Sets and their Corresponding Orbit Representatives (M.Sc. Project, 2008, K.U.).
- xix. M. R. Kangogo; Properties of Some Actions of the Symmetric Group  $S_6$  and Associated Formulas and Structures (M.Sc. Project, 2008, K.U.).
- xx. S. K. Rotich; Some Properties of the Symmetric Group  $S_7$  Acting on Ordered and Unordered Pairs and the Associated Combinatorial Structures (M.Sc. Project, 2008, K.U.).
- xxi. B. K. Ndung'u; Actions of Projective Linear Groups and Associated Combinatorial Structures (M.Sc. Thesis, 2007, J.K.U.A.T.).
- xxii. J. K. Rimberia; Applications of Cycle Indices and Marks of Permutation Representations of the Groups;  $A_4$ ,  $S_4$ ,  $A_5$ , and  $S_5$  (M.Sc. Project, 2007, K.U.).
- xxiii. L. N. Nyaga; Error Reduction in the Gregorian Calendar (M.Sc. Thesis, 2006, J.K.U.A.T.).
- xxiv. M. M. Mbindyo; On the Cycle Indices of Semidirect Product Groups (M.Sc. Project, 2006, K.U.).
- xxv. R. W. Gachogu; The Conjugacy Structure of the Linear Group  $GL(4, q)$  and Cases of Splitting of Conjugacy Classes in  $SL(n, q)$  (M.Sc. Project, 2006, K.U.).
- xxvi. L. N. Njuguna; The Derivation of Cycle Indices of  $S_n^{(r)}$  and  $S_n^{[r]}$  (M.Sc. Project, 2004, K.U.).
- xxvii. E. B. Inyangala; Some Actions of the Modular Group and the Associated Suborbital Graphs (M.Phil. Thesis, 2000, Moi University).
- xxviii. S. C. Kisaka; Group Actions and their Associated Algebraic and Geometric Structures (M.Sc. Project, 2000, K.U.).
- xxix. J. O. Obong'o; Derivation of some Enumeration Formulas and Affine Equivalence Classes using Group Actions (M.Sc. Project, 1997, K.U.).
- xxx. D. M. Malonza; The Conjugacy Class and Order Structure of General Linear Groups and Special Linear Groups (M.Sc. Project, 1994, K.U.).

## **CONFERENCES / SEMINARS / WORKSHOPS**

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### **i. Participation / Attendance of Conferences / Workshops**

- 2019: The Third Kenyatta University International Mathematics Conference, 17<sup>th</sup> – 20<sup>th</sup> June 2019 at KUCC.
- 2015: The Second Kenyatta University International Mathematics Conference, 16<sup>th</sup> - 19<sup>th</sup> June at the Graduate School building
- 2013: First Kenyatta University Workshop on Mathematical Modeling, 17<sup>th</sup> - 21<sup>st</sup> June at KUCC
- 2011: First Kenyatta University International Mathematics Conference, 8<sup>th</sup> - 10<sup>th</sup> June at KUCC
- 2010: 1<sup>st</sup> East African Regional Scientific Conference of School of Pure and Applied Sciences 10<sup>th</sup> - 14<sup>th</sup> August at Kenyatta University Business and Student Service Centre Conference Room
- 2009: 19<sup>th</sup> Postgraduate Seminar held on 24<sup>th</sup> November, in BZ7 K.U.
- 2009: Curriculum Review Workshop held on 28<sup>th</sup> and 29<sup>th</sup> July at KUCC
- 2009: Data Analysis Conference (Series of lecturers given by Prof. Enrico Rogora) held on 26<sup>th</sup> August - 4<sup>th</sup> September in the Students' Computer Lab, K.U.
- 2008: Training workshop for members of schools' curriculum committees held on 9<sup>th</sup> - 10<sup>th</sup> December in the AVU Main Hall, K.U.
- 1991: Thirteenth British Combinatorial Conference, 8<sup>th</sup> - 12<sup>th</sup> July, University of Surrey
- 1989: Twelfth British Combinatorial Conference, 3<sup>rd</sup> - 7<sup>th</sup> July, University of East Anglia

### **ii. Presentation of Papers at Academic and Professional Conferences**

- i. F.B. Magero and I.N. Kamuti; “Subdegrees of  $PSL(2, q)$  on the Cosets of  $C_{q-1/k}$ ” Second Kenyatta University International Mathematics Conference, 16<sup>th</sup> - 19<sup>th</sup> June 2015, at Graduate School Building
- ii. F.B. Magero and I.N. Kamuti; “Suborbits and Suborbital Graphs of  $PSL(2, q)$  Acting on the Cosets of  $C_{q-1/k}$ ” Second Kenyatta University International Mathematics Conference, 16<sup>th</sup> - 19<sup>th</sup> June 2015, at Graduate School Building
- iii. J. K. Rimberia and I. N. Kamuti: “Ranks and Subdegrees of the Symmetric Group  $S_n$  Acting on  $r$ -element Subsets” First Kenyatta University International Mathematics Conference, 8<sup>th</sup> - 10<sup>th</sup> June 2011, at KUCC
- iv. R. K. Gachimu, C. W. Mwathi and I. N. Kamuti: “Necessary Conditions for Existence of a Friend of 38” First Kenyatta University International Mathematics Conference, 8<sup>th</sup> - 10<sup>th</sup> June 2011, at KUCC
- v. I. N. Kamuti, E. B. Inyangala and J. K. Rimberia: “Action of  $\Gamma_\infty$  on  $\mathbb{Z}$ ” First Kenyatta University International Mathematics Conference 8<sup>th</sup> - 10<sup>th</sup> June 2011, at KUCC
- vi. I. N. Kamuti: “Suborbital Graphs” Seminar held in the Mathematics Department, Kenyatta University, 16<sup>th</sup> April 2001
- vii. I. N. Kamuti: “Singer Cycles” Paper presented during a research students conference in Combinatorics, University of Surrey, 26<sup>th</sup> - 28<sup>th</sup> March 1990

### **iii. Convening and Coordinating Conferences / Seminars**

- 2019: The third Kenyatta University International Mathematics Conference, 17<sup>th</sup>-20<sup>th</sup> June 2019 at KUCC.
- 2015: The Second Kenyatta University International Mathematics Conference, 16<sup>th</sup> - 19<sup>th</sup> June 2015, at the Graduate School building
- 2013: First Kenyatta University Workshop on Mathematical Modeling, 17<sup>th</sup> - 21<sup>st</sup> June 2013, at KUCC
- 2011: First Kenyatta University International Mathematics conference 8<sup>th</sup> - 10<sup>th</sup> June 2011
- 2010: 1<sup>st</sup> East African Regional Scientific conference of school of Pure and Applied Sciences 10<sup>th</sup> - 14<sup>th</sup> June 2010, at Kenyatta University Business and Student Service Centre Conference Room



## RESEARCH AND PUBLICATIONS

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- i. Muthoka G.N; Kamuti I. and Kavila M. (2019); Derivation of the Cycle Index Formula for the Affline Square ( $q$ ) group acting on  $G F(q)$ ; Int. Journal of Algebra 13, No. 7 Pgs 307-314
- ii. Muthoka G.N; Kamuti I. and Kavila M (2019) Derivation of the cycle index formula of the affine ( $p$ ) group as a semidirect product of the cyclic groups  $C_p$  and  $C_{p-1}$ , 6, No. 3 Pgs 63-68
- iii. Felix Komu and Ileri N. Kamuti (2019); On the cycle Indices of Cyclic and Dihedral Groups acting on  $X^2$ ; International Journal of Research and Scientific innovation (IJRSI), Vol. VI, Issue XII Pgs 110-112
- iv. Patrick Mwangi Kimani (2019); Rank and Subdegrees of  $PGL(2, q)$  acting on cosets of  $PGL(2, e)$  for  $q$  an even power of  $e$ ; International Journal of Algebra, Vol. 13, no. 1 pages 29-36.
- v. Rose W. Gachogu, Ileri N. Kamuti; Moses G. Gichuki (2017); Properties of Suborbits of the Didedral Group  $D_n$  acting on ordered subsets; Advances in Pure Mathematics vol. 7 Pgs 375-382.
- vi. R. Gachimu, I. Kamuti, L. Nyaga, J. Rimberia and P. Kamaku (2016); Properties and Invariants Associated with the Action of the Alternating Group on Unordered Subsets; International Journal of Pure and Applied Mathematics, Vol.106 No.1, Pgs 333-346
- vii. Olum F.O., Kamuti I., Kavila M. and Ochieng R.C. (2016); Action of the cyclic group  $C_n$  acting on the diagonals of a regular  $n$  –gon, Mathematical Theory and Modelling, 6, No. 1 Pgs 115-125.
- viii. Geoffrey Muthoka, Ileri Kamuti, Kimani P. (2016); Cycle Index Formulas of  $D_n$  acting on ordered pairs; International Journal of Science and Research.
- ix. R. Gachimu, I. N. Kamuti, L. Nyaga and J. Rimberia (2015); On the Suborbits of the Alternating Group  $A_n$  Acting on ordered  $r$ -element Subsets; International Electronic Journal of Pure and Applied Mathematics, Vol.9 No.3, Pgs 137-147

- x. Geoffrey Muthoka, Ileri Kamuti, Hussein Lao and Patrick Mwangi (2015); Cycle Index Formulas for  $D_n$  Acting on Unordered Pair; Mathematical Theory and Modelling, Vol.5 No.1, Pgs 16-22
- xi. Leonard Mariera Siro, Damian M. Maingi, Kamuti Ileri N. and James Njoroge (2014); Rank and Subdegrees of the Symmetric Group,  $S_n$ ,  $n \leq 7$  Acting on Ordered Triples; International Journal of Algebra, Vol.8 No.9 Pgs 433-437
- xii. Leonard Mariera Siro, Kamuti Ileri N., Damian M. Maingi (2014); On the Actions of the Symmetric Group,  $S_n$ ,  $n \leq 7$  on Unordered Quadruples,  $X^{(4)}$ ; International Journal of Algebra, Vol.8 No.3 Pgs 115-120
- xiii. R. W. Gachogu and I. N. Kamuti (2014); Properties of Suborbital Graphs of the Dihedral Groups,  $D_n$  Acting on Unordered r-element Subsets; International Journal of Algebra, Vol.8 No.12 Pgs 557-561
- xiv. R. W. Gachogu and I. N. Kamuti (2014); Ranks and Subdegrees of the Dihedral Groups,  $D_n$  Acting on Unordered, r-element Subsets; International Journal of Algebra, Vol.8 No.11 Pgs 537-545
- xv. Cyprian Ndirangu, Ileri Kamuti and Moses Ruto Kangogo (2014); Ranks and Subdegrees of the Dihedral Group  $D_n$  Acting on Diagonals of a Regular  $n$ -gon; Journal of Mathematical Sciences, Vol.25 No.3 Pgs 103-112
- xvi. Lewis Nyaga and Ileri Kamuti (2013); Suborbital Graphs of the Symmetric Group  $S_n$  Acting on Unordered r-element Subsets; Journal of Agriculture Science and Technology, Vol.15(1) Pgs 114-121
- xvii. J. K. Rimberia, I. N. Kamuti, B. M. Kivunge and F. Kinyua (2013); Suborbits and Suborbital Graphs of the Symmetric Group  $S_n$  Acting on Ordered r-element Subsets; Mathematical Theory and Modeling, Vol.3 No.11 Pgs 115-120
- xviii. J. K. Rimberia, I. N. Kamuti and B. M. Kivunge (2013); Subdegrees of the Symmetric Group  $S_n$  Acting on Ordered r-element Subsets; International Journal of Science, Commerce and Humanities, Vol.1 No.6 Pgs 112-118
- xix. R. K. Gachimu, C. W. Mwathi and I. N. Kamuti (2012); Necessary Conditions for Existence of a Friend of 38; Journal of Agriculture, Science and Technology, Vol.14 No.1 Pgs 38-44

- xx. Stephen Kipkemoi Kibet, Ileri Nthiga Kamuti, Gregory Kerich and Albert Kimutai (2012); Properties of the Symmetric Groups  $S_n$  ( $n \leq 7$ ) Acting on Unordered Triples; African Journal of Mathematics and Computer Science, Vol.5(10) Pgs 173-175
- xxi. I. N. Kamuti (2012); Cycle Index of Internal Direct Product Groups; International Mathematical Forum, Vol.7 No.30 Pgs 1491-1494
- xxii. I. N. Kamuti, E. B. Inyangala and J. K. Rimberia (2012); Action of  $\Gamma_\infty$  on  $\mathbb{Z}$  and the Corresponding Suborbital Graphs; International Mathematical Forum, Vol.7 No.30 Pgs 1483-1490
- xxiii. Lewis Nyaga, Ileri Kamuti, Cecilia Mwathi and Jotham Akanga (2012); Ranks and Subdegrees of the Symmetric Group  $S_n$  Acting on Unordered r-element Subsets; International Electronic Journal of Pure and Applied Mathematics, Vol.3 No.2 Pgs 147-163
- xxiv. Michael Munyoki, Ileri Kamuti, Benard Kivunge (2010); On the Cycle Index of Frobenius Groups; International Electronic Journal of Pure and Applied Mathematics, Vol.1 No.3 Pgs 339-344
- xxv. I. N. Kamuti (2006); Subdegrees of Primitive Permutation Representations of  $PGL(2, q)$ ; East African Journal of Physical Sciences, Vol.7 No.1/2 Pgs 25-41
- xxvi. I. N. Kamuti (2004); On the Cycle Index of Frobenius groups; East African Journal of Physical Sciences, Vol.5 No.2 Pgs 81-84
- xxvii. I. N. Kamuti and L. N. Njuguna (2004); On the Cycle Index of the Reduced Ordered r-group; East African Journal of Physical Sciences, Vol.5 No.2 Pgs 99-108
- xxviii. I. N. Kamuti and J. O. Obong'o (2002); The Derivation of Cycle Index of  $S_n$ <sup>[3]</sup>; Quaestiones Mathematicae; Journal of the South African Mathematical Society, Vol.25 Pgs 437-444

## **NETWORKING AND COLLABORATION WITH EXTERNAL ORGANIZATIONS / INSTITUTIONS**

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- i. Egerton University
  - Supervised successfully R. W. Gachogu in her Ph.D. Thesis entitled; Ranks, Subdegrees and Suborbitals Graphs of Finite Permutation Groups (2019).

- ii. Kibabii University
  - Supervised successfully L.K. Rukaria in her Ph.D Thesis entitled; Codes, Designs and Graphs obtained from some Projective Symplectic Groups (2019)
- iii. Technical University of Mombasa.

Invited guest for M.Sc and Ph.D Curriculum review workshop 12<sup>th</sup>-13<sup>th</sup> March 2020.
- iv. Jomo Kenyatta University
  - Supervised successfully R. K. Gachimu in his Ph.D. Thesis entitled; Cycle Indices and Suborbital Graphs of the Alternating Group  $A_n$  Acting on Ordered and Unordered r-element Subsets (2016).
  - Supervised successfully L. N. Nyaga in his Ph.D. Thesis entitled; Action of Symmetric Group  $S_n$  on Unordered r-element Subsets and Associated Suborbital Graphs (2012)
  - Supervised successfully B. K. Ndung'u in his M.Sc. Thesis entitled; Some Actions of Projective Linear Groups and Associated Combinatorial Structures (2007)
  - Supervised successfully L. N. Nyaga in his M.Sc. Thesis entitled; Error Reduction in the Gregorian Calendar (2006)
- v. Moi University
  - Supervised successfully E. B. Inyangala in his M.Phil. Thesis entitled; Some actions of Modular Group and Associated Suborbital Graphs (2000)
- vi. Referee of the Kenya Journal of Sciences (2007)
- vii. Ministry of Education
  - Judge in Secondary Schools Students' Science Congress (1999-2002)

## RESEARCH GRANTS

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- In June 2019, Ministry of Education Conference Support (as one of the committee members)
- In June 2019, CEMASTEIA Conference support (as one of the committee members)
- June 2015, London Mathematical Society (LMS) Conference Support KSh. 200000 (as one of the committee members)
- June 2015, NACOSTI Conference Support ( £ 2000) (as one of the committee members)
- June 2011, Mentoring African Research in Mathematics (MARM) Conference Support (as one of the committee members)

- June 2011, National Council for Science and Technology (NCST) Conference Support (as one of the committee members)
- Awarded a scholarship by British Council to do my Ph.D. research (1988-1991)

### **ACADEMIC AND PROFESSIONAL SERVICE**

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- (a) External Examiner of Karatina University, June 2020 – June 2023.
- (b) External Examiner of Moi University, 21<sup>st</sup> Oct 2016 – present
- (c) I was the External Examiner of the following Ph.D Thesis:
  - (i) Hussein Mude Lao; Automorphisms of Zero Divisor Graphs of Commutative Unital Finite Rings (Masinde Muliro University, Oct. 2020).
  - (ii) Kasyoka Donnie Munyao; Regular Prime Graphs of Finite Groups (Maseno University, Dec 2019).
  - (iii) Flora Mati Runji; On Numerical Ranges and Elementary operations (Moi University, July 2018).
  - (iv) Rose Wambui Gachogu; Ranks, Subdegrees and Suborbital Graphs of finite Permutation Groups (Internal Examiner, Egerton University, Dec. 2018).
  - (v) Walwenda Shadrack Odero; Zero Divisor Graphs of classes of Completely Primary Finite Rings of Maximal Prime Power characteristic (Maseno University, Feb. 2017).
  - (vi) Ojiema Micheal Onyango; Automorphisms of Unit Group of Square Radical Zero, Cubic Radical Zero and Power 4 Radical Zero Finite Commutative Finite Completely Primary Rings (Maseno University, Nov. 2016)
  - (vii) H. Osango; On Conjugacy classes and Order Structure of General Linear Groups over Galois Fields (Maseno University, Sep. 2014).
  - (viii) L.N. Nyaga; Action of Symmetric Group  $S_n$  on Unordered  $r$  –element subsets and Associated Suborbital Graphs (J.K.U.A.T, Sept. 2011).
- (d) I was the External Examiner of the following M.SC. Thesis:
  - (i) George Kariuki Maina; Properties and Characterizations of Normaloids, Convexoid, Transloid and Spectraloid Operators in Hilbert Spaces (Internal Examiner, KU, Jan. 2021).

- (ii) Kioko Eugene Moses; C– Loops obtained from Hyper – Complex numbers (Internal Examiner, KU, Jan. 2021).
- (iii) Dennis Kinoti; Triple System and Fano Plane Structure in  $\mathbb{Z}_n$  (Internal Examiner, KU, Oct. 2020).
- (iv) Joyce Mukhwana Ngala; Comparative Analysis of Spectral Theory of Differential and Difference Operators on Hilbert Spaces (Moi University, July 2019).
- (v) Robert Cheruiyot Kemboi; Mean Value Theorem for Metric and Measure Spaces (Moi University, July 2019).
- (vi) Victor Tomno; The Weakly Sign Symmetric  $P_{0,1}^+$  –Matrix Completion Problem (Moi University, Feb. 2019)
- (vii) Prisca Muthoki; On Numerical Range in Hilbert Spaces (Internal Examiner, KU, Oct. 2018)
- (viii) Frank Omondi Ndago; On the Adjacency and Incidence matrices of the Zero Divisor Graphs of Squares Radical Zero Finite Commutative Rings (MMUST, April 2018)
- (ix) Ngugi Florence Wairimu; The Projective Geometry Structure in  $\mathbb{Z}_n$  (Internal Examiner, KU, Oct. 2017)
- (x) Musundi Beryl Onyuma; Modelling Cholera Transmission Incorporating Media Coverage (Moi University, Oct 2016).
- (xi) G.O. Barini; The Bounds of the Second Largest Eigenvalue of some real Symmetric Matrices (J.K.U.A.T, Aug. 2012).

## **NATIONAL AND INTERNATIONAL RECOGNITION**

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### **1. National**

- Advisory Board Member of African Journal of Pure and Applied Sciences (AJPAS) (2020-2022)
- Certificate of Completion of a course on Teaching Methodology (K.U. 28th May – 14th November 2013)
- Referee of the Kenya Journal of Sciences (1998)

## **2. International**

- 1<sup>st</sup> May 2015, Awarded a Certificate for Membership of the European Center for Research, Training and Development, U.K.
- Awarded a Certificate of Completion of a course in Mathematics provided by the British Government as a part of its Technical Cooperation Programme (1988-1991)

## **ACADEMIC LEADERSHIP**

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- Chairman of the Departmental Committee to spearhead the development of an M.Sc. (Information Theory, Coding and Cryptography) programme, Nov. 2009
- Member of a Departmental Committee to spearhead the development of a B.Sc.(Mathematics and Computer Science) programme, Nov. 2009

## **MEMBERSHIP TO PROFESSIONAL BODIES**

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- Advisory Board Member of African Journal of Pure and Applied Sciences (AJPAS) (2020-2022)
- Member of the European Centre for Research, Training and Development, U.K. (2015)
- Member of British Combinatorial Mathematical Society (1988 - 1991)

## **REFEREES**

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Prof. L. Odongo,  
Department of Statistics and Actuarial Science, K.U.

Prof. J. Gatoto  
Department of Mathematics, K.U.

Prof. I.N. Kamuti, B.Ed., M.Sc. (Pure Maths), Ph.D. (Pure Maths) CV-09/05/2019

Dr. B. Kivunge

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