
CURRICULUM VITAE

CHARLES MAINA MIGWI, B. Ed (Science), M.Sc, Ph. D

1.0 Personal Information

- Name : Charles Maina Migwi
- Address: P.O. Box 1307-00232 Ruiru, Kenya
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2.0 Qualifications

a) Academic:

- 1992 - 1995: University of Salford , UK, Doctor of Philosophy (**Ph.D**)
Specialisation : Material Science / Polymer Physics
- 1984 - 1988: University of Nairobi, Master of Science (in Physics) (**M.SC**)
Specialisation : Material Science / Polymer Physics
- 1979 - 1983: University of Nairobi, Bachelor of Education (Science) (**B.Ed Science**) – **Second Class Honors Upper Division**
- 1976 - 1979: Kenya Science Teachers College : **S.1 Teaching Certificate**
- 1972 - 1975: Nyahururu Secondary School: East Africa Certificate of Education (**EACE**) - **Division I**
- 1965– 1971: Malewa Primary School: Certificate of Primary Education (**CPE**)

b) Professional Qualifications

Trained Graduate Teacher , Lecturer

3.0 Employment History

- 1990 – To date : Lecturer, Department of Physics KU
- 1988 – 1990 : Tutorial Fellow Department of Physics KU
- 1987 – 1988: Graduate Assistant, Department of Physics, KU
- 1983 – 1984 : Graduate Teacher, Teachers Service Commission, Mwenje Secondary School

4.0 Administrative Responsibilities

Present administrative positions

- Member of Research and Travel Grant Board of SPAS
- Chairing strategic plan Committee in Physics Department
- Academic Advisor of postgraduates students
- Member of the Kenyatta University Disciplinary Committee
- Chairman of Kenyatta University Short-listing Committee – External applicants for Academic and non academic staff posts.

Past administrative positions held

- Chairman, Department of Physics, Kenyatta University (June 2006 – July 2011)
- Member of School of Pure and Applied Sciences executive board (2006 -2011)
- Member of School of Pure and Applied Sciences academic board (2006 -2011)

5.0 Postgraduate Supervision:

a) Successfully completed supervision

Ph.D Thesis

- Dr. J.K. Gathua : Thesis title “ Pozzolanicity of Selected Kaolinites with Special Focus on Pyroprocessing Parameters “ (**Ph.D 2005**)
- Dr. L.O. Ochoo : Thesis title “ The influence of Silver Nanoparticles on the Optical Properties of Methylene Blue and Curcumine Dyes” (Ph. D 2014)

M.Sc Theses

- Mousatapha Kassim : Thesis title “ Magnetic studies of iron ore mineral deposits in Mbeu area, Meru county in the Republic of Kenya” 2014.
- Wanyama Paul Simiyu : Thesis title “ Effect of consolidation parameters on creep, fatigue and dynamic mechanical behavior of self reinforced polypropylene composites “ 2014.
- Otieno G. Were : Thesis title “Mechanical, diffusion and degradation properties of blends of cellulose and recycled low density polyethylene” (2013)
- Agan Paul Okelo : Thesis title: “ Mechanical, thermal , diffusion and degradation properties of high density polyethylene and cellulose blends” (2013).
- Augustine Ketko : Thesis title “ Studies of effects of petroleum products spillage on environment in Mwavumbo, Kilifi County “ (2013).

- Korir P. Kiprono : Thesis title “ Mechanical, diffusion and degradation behaviour of polypropylene and cellulose blends “ (2013).
- Riara M. Munene : Thesis title “ Effect of aspergillus niger on mechanical, diffusion and degradation properties of blends of cellulose and low density polyethelyne “ (2013).
- Waswa M. Nakitare : Thesis title “ Effect of aspergillus niger on mechanical, diffusion and thermal properties of high density polyethelyne” (2013).
- Abuga V. Onyancha : Thesis title “Geophysical investigation of Mbeu iron ore deposit in Meru County using Gravity Method “ (2013).
- Mbithi N. Matheka. Thesis title: “Mechanical properties and thermal degradation of Bitumen-Acacia sap composites “ (2012).
- Kipkemboi R. Boiyo. Thesis title: “ Estimating sensible heat flux from remotely sensed moderate resolution imaging spectroradiometer(MODIS) data” (2012).
- W.K. Kipnusu : Thesis title “Structural and Electrical Characteristics of Nandi Flame Seed Cuticle, a Biopolymer “ (2009).
- G.W. King’ori :_Thesis title “ Dynamic Mechanical Analysis of Unirradiated and Gamma ray Radiated Injection Molded Virgin and Recycled High Density Polyethelene (2007).
- John Mutua : Thesis title “ Molecular Dynamics of Styrene Butadiene Rubber : the Influence of Additives and the Degree of Cross-linking “ (1997).

b) Ongoing supervision

M.Sc –Theses

- Wachira A. Mwangi (I56/CE/22376/2010
- Namaswa S. Wangila (I56/CE/22361/10

6.0 Conferences / workshops

6.1 Presentation of Paper at Academic and Professional Conference

- Lawrence Ochoo, **Charles Migwi** and John Okumu. ‘ Thermal and Electric Enhancement effects of Metal Nanoparticles for Diagnostic and therapeutic applications in cancer and HIV management’. Inaugural Conference on Nanotechnology and Material Science Development in Kenya, 18th - 21st July 2012 Kenyatta University
- J.K. Gathua, **C.M. Migwi**, J.K Thiong’o and Wanjau Kabecha “ Optimizing Pyroprocessing Conditions of Pozzolanas Using Compressive and Dissolution Methods”, 5th International Conference , The Kenya Chemical Society, 22nd – 26th August 2005 Kenyatta University, Nairobi Kenya

6.2 Participation/ Attendance of conferences/ workshops

a) Conferences

- Nanotechnology and Materials Science Conference – The Inaugural Conference on Nanotechnology and Materials Science in Kenya, held Kenyatta University on 18th – 20th July 2012.
- The 1st East African Regional Scientific Conference, School of Pure and Applied Sciences, Kenyatta University, Nairobi Kenya, 10th – 14th August 2010.
- The 5th **International Conference**, The Kenya Chemical Society hosted by Department of Chemistry in Kenyatta University from 22nd – 26th August 2005.

b) Workshops

- Public Procurement **Workshop** – Kenyatta University Nairobi 11th April 2008
- **Kenya Physical Society Workshop** on Physics Education: Trends and Challenges – Kenyatta University 13th – 14th September 2001

c) Short courses

- **Short course** in Management of University Department –Centre for Capacity Development in Higher Education-Kenyatta University 19th – 21st August 2009
- **Short Course** in Polymer Characterization and Analysis, University of Lancaster, UK. 22nd – 24th September 1992

7.0 Research, Publications

7.1 Internationally Refereed Journal

- Wanyama Paul Simiyu, Migwi Charles Maina and Barasa Daniel Bem , “ Effect of fiber draw ratio and fiber weight fraction on creep, fatigue and dynamic

mechanical behavior of self reinforced polypropylene composites” The International Journal of Science and Technology Vol II, Issue XII, (2014)

- Martin M. Riara, Abdallah S. Merenga, and **Charles M. Migwi**. “ Creep and Recovery Behavior of Compression Molded Low Density Polyethylene/Cellulose Composites”. Hindawi Publishing Corporation Journal of Polymers Volume 2(7) 2013, Article ID 209529, 6 pages
- Mbithi N.M., Merenga A.S. and Migwi C.M., “ Creep and Recovery of Bitumen – Acacia Sap Composites “ International Journal of Research and Technology “ 1(11) 029 - 033 (2013)
- Mbithi N.M., Merenga A.S. and Migwi C.M., “ Mechanical Analysis and Thermal Properties of Bitumen – Acacia Sap Composites “ International Journal of Research and Technology “ 1(2) 7 (2013)
- Abuga Vincent, Moustapha Kassim, **Migwi Charles**, Ambusso Willis, Muthakia Gerald. Geophysical Exploration of Iron Ore Deposit in Kimachia Area in Meru County in Kenya, Using Gravity and Magnetic Techniques, International Journal of Science and Research (IJSR) ISSN (Online): Volume 2 Issue 11, 2319-7064, November 2013
- Lawrence Ochoo, **Charles Migwi** and John Okumu. *Damping effect of inner band electrons on the optical absorption and bandwidth of metal nanoparticles. Journal of Nanoparticles Research. (2012) 14:1 - 14*
- Wycliffe K. Kipnusu, Gabriel Katana, **Charles M. Migwi**, I.V.S Rathore and Joshua R. Sangoro. “*Charge Transport Mechanism in Thin Cuticles Holding Nandi Flame Seeds*” International Journal of Biomaterials Volume May 2009
- Wycliffe K. Kipnusu, Gabriel Katana, **Charles M. Migwi**, I.V.S Rathore and Joshua R. Sangoro. “*Electrical Switching in Thin Films of Nandi Flame Seed Cuticles*”, International Journal of Polymers Science January 2009
- Wycliffe K. Kipnusu, Gabriel Katana, **Charles M. Migwi**, I.V.S Rathore, Joshua R. Sangoro, J. Tsuwi, A. Serghei and F. Kremer, “*Molecular Dynamics Characteristics of Nandi Flame Seed Cuticle Biomaterial* “ Journal of Polymer Material Vol 26, No1 2009, 129 – 139
- G. King’ori, A.S. Merenga and **C.M. Migwi** , “ *Dynamic mechanical analysis of injection molded gamma-irradiated virgin and recycled high density polyethylene*” East Africa Journal of Physical Sciences, Volume 7 Part 1 & 2 2006, 1-12
- **C.M. Migwi**, M.I. Darby, G.H. Wostenholm, B. Yates, R. Duffy and M. Moss, “*A method of determining the Shear Modulus and Poisson’s ratio of Polymer Material*, Journal of Materials Science 29 (1994) 3430 -3432

7.2 Papers in Conference Proceedings

- Lawrence Ochoo, **Charles Migwi** and John Okumu. ‘ Thermal and Electric Enhancement effects of Metal Nanoparticles for Diagnostic and therapeutic applications in cancer and HIV management. Proceedings from the Inaugural Conference on Nanotechnology and Material Science Development in Kenya, held on 18th - 21st July 2012 Kenyatta University
- J.K. Gathua, **C.M. Migwi**, J.K Thiong’o and Wanjau Kabecha “ *Optimizing Pyroprocessing Conditions of Pozzolanas Using Compressive and Dissolution Methods*”, paper presented in the 5th International Conference , The Kenya Chemical Society, held on 22nd – 26th August 2005 Kenyatta University, Nairobi Kenya.

7.3 Research Grants and Proposals

- Jointly with others have written research proposal for a project titled: An investigation of the mineral potential of iron bearing rocks in Mbeu area of Central Tigania in Meru County. The Proposal was presented to National Council for Science and Technology for consideration in funding in 2011- 2012 – Was not successful on ground of not fitting in the thematic areas to be funded.
- Jointly with others wrote a proposal seeking funding from Kenya Roads Board in June 2012. The project title was : Stabilization of rural roads through the utilization of rural / local building materials. A study on the use of rice husk ash and clays in the Mwea Region of Kirinyaga District – Kenya. There has not been any communication since the date of submission of the proposal.

8.0 Other Contributions

a) External Examination

- Paul Kimeu Ngumbi, M.Sc thesis - title ‘ Development of an electric based system for water quality control, May 2008 - **Jomo Kenyatta University of Agriculture and Technology**
- Carolyne May Mutambi, M.Sc thesis – title “ Development of Bending Mode Polymer Piezoelectric Bandage for Bone Fracture Healing” 2006, **Jomo Kenyatta University of Agriculture and Technology**
- A.J.M. Musyoki, M.Sc thesis – title “Switching, Memory and Photoelectric Effects in Thin Polymeric Films” 1999, **Egerton University**.

- Moderation of Final Physics Examination Paper – **Kenya Science Teachers College October 1999**
- Carolyn May Mutambi, M.Sc thesis – title “ Development of Bending Mode Polymer Piezoelectric Bandage for Bone Fracture Healing” 2006, **Jomo Kenyatta University of Agriculture and Technology**

b) Recognition

- Certificate of recognition in contribution towards the university’s attainment of First Position in Performance Contracting (State Corporations) 2006/2007 Cycle on 21st May 2008

9.0 Academic Leadership

a) Initiating new academic programmes in the department

- i) Bachelor of Science (Telecommunication and Information Technology) 1999 as Chairman, Board of Undergraduate Studies in the department
- ii) Master of Science (Electronics and Instrumentation) 2006 –as chairman of department
- iii) Master of Science (Telecommunication) 2007 – as chairman of department of physics.

b) Reviewer of Grant Application Proposals

- Participated as a peer reviewer of research proposals for the Science and Technology and Innovation Grants held at Kenya School of Law, Karen from 27th to 30th July 2011
- Participated as a peer reviewer of research proposals for the Science and Technology and Innovation Grants held at Kenya Commercial Bank, Leadership Centre, Karen from 5th to 9th September 2011.

10.0 Networking and Collaboration with External Organization

- As chairman of department, I initiated in through the Directorate of of Industrial Linkages development of an MoU between Kenyatta University and KenGen which was signed and launched on 19th May 2010 – in Mandela Board Room of Kenyatta University.

11.0 Quality Teaching, Performance and Commitment to Duty

12.0 Membership to Professional Bodies

- Member of Kenya Physical Society – 1996 – To date
 - Institute of Physics, London, UK 1992 – 1995