

BIODATA

Date of Birth: 29th October, 1969
Sex: Male
Marital status: Married
Religion: Protestant

EXPERTISE

Solar cell and solar module characterization, Photovoltaics, Renewable Energy, Electronics and Instrumentations, Solar Energy materials and solar cells.

SUMMARY

- Demonstrated achiever with exceptional knowledge of Physics in research and teaching the undergraduate and post-graduate courses. Well versed with undergraduate and post-graduate physics practical and experiments.
- Skilled at learning new concepts quickly, working well under pressure and communicating ideas clearly and effectively.
- Extensive computer literacy with good knowledge of multiple computer networking environments, academic and research software programming packages.
- Enthusiastic and experienced in local and overseas travel.

EDUCATION

Nelson Mandela Metropolitan University, Port Elizabeth, South Africa 2007 to 2011

Philisopiae Doctor (PhD in Physics)

Thesis Title: Characterization of concentrator solar cell devices and materials using Light-Beam Induced Current measurements.

Egerton University, Nakuru, Kenya 2002 to 2004

Post-Graduate Diploma in Education (PGDE)

Project Title: The studies of the possible causes of poor performance in Mathematics at Kenya certificate of Secondary Education (KCSE): A case study of Koibatek District Secondary Schools.

Moi University, Eldoret, Kenya 1993 to 1997

Master of Philosophy (MPhil in Physics)

Thesis Title: The fabrication and use of a capacitance-voltage (C-V) meter.

Moi University, Eldoret, Kenya 1989 to 1992

Bachelor of Science (Bsc)

Qualification: Second Class Honours Upper Division

Subjects: Physics and Mathematics: Area of specialization: Applied Electronics

Project Title: The design and construction of a power supply unit to axially excite a N₂ gas laser.

Sacho High School 1987 to 1988

A Level: Kenya Advanced certificate of Education (KACE)

Qualification: Mathematics, Physics and Chemistry **3P 0S 8 points**

Kabarnet Secondary school

O Level: Kenya certificate of Education (KCE)

1983 to 1986

Qualification: 23 Points DIV II

Tiripkatoi Primary School

Certificate of Primary Education (CPE) 28 Points

1976 to 1982

AWARDS

African Lacer Center (ALC) fellowships tenable in South African Universities and centers of excellence for PhD studies

2007 – 2011

Nelson Mandela Metropolitan university fellowships for PhD studies in support of existing fellowships within the university

2007 – 2011

GOK-Moi University: Master of Philosophy fellowships

1993 – 1995

UNIVERSITY TEACHING EXPERINCE

Department of Physics, Kenyatta University

Lecturer and Researcher

2011 to present

Lecture both Post graduates and undergraduates and supervised Msc and PhD thesis

Department of Physics, Kenyatta University

Tutorial Fellow

2006 to 2011

Lecture Undergraduates and supervise undergraduate laboratory experiments

Department of Mathematics and Computer Sciences, Moi University

Part-Time lecturer

2004 to 2006

Lecture Physics and Electronics units to Computer Science students

Department of Physics, Moi University

Part-Time lecturer

2004 to 2006

Lecture basic Physics and Electronics to Undergraduates

RELATED TEACHING EXPERIENCE

Teacher Service Commission

Graduate Teacher, Torongo Secondary School, Baringo County

2004 to 2006

Teaching Mathematics and Physics to High school students and prepare them for final KCSE examination. School career master and Examination master

Teacher Service commission

Untrained Graduate Teacher, Torongo Secondary School, Baringo County

1993 to 2004

Teaching Mathematics and Physics to High School students and preparing them for KCSE examinations

Poror High School

Untrained Graduate Teacher under School BOG

1992 to 1993

Teaching mathematics and Physics

CAREER HISTORY AND ACCOMPLISHMENTS

Teaching and Research Kenyatta University, Nairobi, Kenya (2011 to present)

- Acting chairman, Departmental board of post graduate studies (May to August, 2015) and for short durations in 2014 and 2016
- Acting chairman, Department of physics, Kenyatta university for short periods in 2015, 2016, 2017, 2018 and 2019
- Appointed member, Train The Trainer (TTT) workshop (2017-2020). A Kenyatta University Neu-Ulm university Germany-Project on applied Entrepreneurship Academy in Renewable Energy
- Member of local organizing committee the 6th ICAT workshop held at Kenyatta University in 2014 (16th to 22nd November, 2014 at School of Engineering Boardroom)
- Member of School of Pure and Applied Sciences building committee
- Member of School of Pure and Applied Sciences scientific awareness committee

- Teaching physics courses to both the undergraduates and post graduates students
- Supervise reached thesis for Msc and PhD studies
- Attended student placement meeting at department board of postgraduate committee
- Attended postgraduate research and evaluation seminars
- Physics field trips coordinator.
- First year academic advisor
- First years laboratory director

Teaching and research Kenyatta University, Nairobi, Kenya (2006 to 2007)

- Taught physics courses to the undergraduates
- Coordinate and supervise physics experiments to the undergraduates
- Attended student placement meeting at department board of undergraduate committee
- Attended postgraduate research and evaluation seminars

Departmental Field trips course coordinator Kenyatta University, Nairobi, Kenya

- Handled administrative functions of departmental fields trip division catering primarily for the planning and implementing departmental fields trips
- Solicits for departmental fields trip funds from the university
- Organize, plan and administer departmental fields trip in line with departmental academic work and per university field trip policy

Part time teaching, Moi university. Eldoret, Kenya.

Taught physics and electronics course to the undergraduates in the Department of Physics and the Department of Mathematics and Computer Science, specific courses taught were Basic Physics, Physics for Agriculture, Digital Electronics, Microwaves, Semiconductor Physics and Electronics

TSC Teaching; Torongo High School, Nairobi, Kenya

- Taught Physics and Mathematics to High School students.
- Prepare students for their final end of course (KCSE) examinations.

- Career and Examination Master; Help, plan and disseminate yearly academic program. Assist and do student placement.

PUBLICATIONS AND PAPERS

1. NM Musila, **MK Munji**, J Simiyu, E Masika, RL Nyenge , (2018) Characteristics of TiO₂ Compact Layer prepared for DSSC application, *Traektorîa Nauki= Path of Science*, 4(10) Pp 3006-3012
2. NM Musila, **MK Munji**, J Simiyu, E Masika, RL Nyenge , (2018) Effect of TiO₂ Compact Layer on DSSC Performance, *Traektorîa Nauki= Path of Science*, 4(9) Pp 5001-5008
3. Wycliffe Omwansu, **Mathew Munji** and Charles Migwi (2018) Electrically Switchable Nano Crystals-in-Glass Coatings That Dynamically Filter Heat and Light, *International Journal of Thin Films Science and Technology* 7(3):113-121
4. Nicholas Musila, **Mathew Munji**, Justus Simiyu, Eric Masika and Raphael Nyenge (2018) Optical Properties and Analysis of OJL Model's Electronic inter-band Transition Parameters of TiO₂ Films, *Traektorîa Nauki = Path of Science*. 4(7):3001-3012
5. Nyasani, E.I., **Munji K.M.**, Mukuru, S.A., Lenatha, M.A. and Nyabuga D. (2018) Wind Energy assessment as a potential alternative energy source in Kisumu city in Kenya. *World Journal of Engineering Research and Technology* 4:75-104
6. P.N. Onkundi, **K.M. Munji**, D.B. Bem and B. Muthoka (2018) Effect of Deposition Parameters on Optical and Electrical Properties of SnO₂:Al Thin Films Prepared by Spray Pyrolysis Technique for Optoelectronic Devices. *International Journal of Thin Films Science and Technology* 7(1):25-33
7. Nelson Mugambi, **Mathew Munji**, Robinson Musembi, John Gitonga and Geoffrey Gitonga (2017) Optical Characterization of Sn_xSe_y: SnO₂-Ni Prepared by Spray Pyrolysis for Photovoltaic Application, *American Journal of Materials Science*, 7(6):240-249
8. Cliff Orori Mosiori, Robert Magare, **Mathew Munji** (2017) Impact of Annealing Thin Films In(OH)_xS_y grown by Solution Technique, *Traektorîa Nauki = Path of Science*. 3(7):3.1-3.8
9. John Gitonga, **Mathew Munji**, Robinson Musembi, Nelson Mugambi and Geoffrey Gitonga (2017) Effect of Substrate Temperature on the Optical Properties of Sn_xSe_y/ZnO:Al P-N Junction Solar Cell, *American Journal of Materials Science*, 7(6):250-257
10. W. Okullo, E.E. van Dyk, F. J. Vorster, **M. K. Munji**, W. J. Alistoun (2017) Maximum Power Point Tracking Algorithm Performance Assessment of Grid-Assist Photovoltaic System, *International Journal of Scientific and Engineering Research* 8(12):358-362

11. Geoffrey Gitonga Riungu, **Mathew Munji**, Robinson Musembi, Nelson Mugambi and John Gitonga (2017) Optical Characterization of $\text{Sn}_x\text{Se}_y/\text{SnO}_2$: Co P-N Junction Deposited by Spray Pyrolysis for Photovoltaic Application, *American Journal of Materials Science*, 7(6):258-265
12. Opiyo S.O., **Munji M.K.**, Njoroge W.K., Makori N.E. and Obare B.M. (2016) Electrical Characteristics of Zn Doped In_2Se_3 Thin Films for Phase Change Memory (PRAM) Applications, *American Journal of Condensed Matter Physics* 6(2):21-26
13. Mosiori C.O., **Munji K.M.**, Maera J. and Magare R.O. (2015) Modeling transfer of electrons between energy states of an electrolyte and CdS thin films using Gerischer model, *Engineering International* 3:35-44
14. Patrick Mwinzi Mwathe, Robinson Musembi, **Mathew Munji**, Francis Nyongesa, Benjamin Odari, Walter Njoroge, Bernard Aduda and Boniface Muthoka (2015) Effect of Annealing and Surface Passivation on Doped SnO_2 Thin Films Prepared by Spray Pyrolysis Technique, *Advances in Materials*, 4(3):51-58
15. N. Kwarikunda, E.E. van Dyk, F.J. Vorster, W. Okullo and **M.K. Munji**, (2014) Application of LBIC measurements for characterization of triple junction solar cells, *Physica B*, 439:122-125
16. Patrick Mwinzi Mwathe, Robinson Musembi, **Mathew Munji**, Benjamin Odari, Lawrence Munguti, Alex Alfred Ntilakigwa, John Nguu, Bernard Aduda and Boniface Muthoka (2014) Influence of surface passivation on optical properties of spray pyrolysis deposited Pd-F: SnO_2 . *International Journal of Materials Science and Applications*, 3(5):137-142
17. Shikali Collins, **Munji Mathew** and Ambusso Willis (2014) Radionuclide Content of Sands Used for Construction in Kakamega County, Kenya and Associated Indoor Radon Diffusion Fluxes, *Journal of Environment and Earth Science*, 4:123-128
18. Patrick Mwathe, Robinson Musembi, **Mathew Munji**, Victor Odari, Lawrence Munguti, Alex Ntilakigwa, John Nguu and Boniface Muthoka (2014) Effect of Surface Passivation on Electrical Properties of Pd-F: SnO_2 Thin Films Prepared by Spray Pyrolysis Technique. *Coatings*, 4:747-755
19. B.A. Butler, E.E. van Dyk, F.J. Vorster, W. Okullo, **M.K. Munji** and P. Booyesen (2012) Characterization of a low concentrator photovoltaics module, *Physica B*, 407(10):1501-1504.
20. R.D. Schultz, F.J. Vorster, **M.K. Munji** and E.E. van Dyk (2011) *Analysis of degradation of CPV cells using solar light beam induced current measurement*, in the proceeding of European Materials Research Society (EMR-S) Nice France, 9th-13th May, 2011.

21. W. Okullo, **M.K. Munji**, F. J. Vorster and E.E. van Dyk, (2011) Effects of spectral variation on the device performance of copper indium diselenide and multi-crystalline silicon photovoltaic modules, *Solar Energy Materials and Solar Cells*, 95(2):759 – 764.
22. **M.K. Munji**, W. Okullo, E.E. van Dyk, and F.J. Vorster (2009) Local device parameter extraction of a concentrator photovoltaic cell under solar spot illumination, *Solar Energy Materials and Solar Cells*, 94:(12):2129–2136
23. **M.K. Munji**, E.E. van Dyk, and F.J. Vorster (2009) *Inhomogeneities in silicon-based back-contact concentrator photovoltaic devices*, In the Proceeding of the 24th European Union Photovoltaic and Solar Energy Conference, vol. 24:717–720.
24. **M.K. Munji**, E.E. van Dyk, and F.J. Vorster (2009) Experimental analysis and modeling of the I–V characteristics of photovoltaic solar cells under solar spectrum spot illumination, *Physica B*, 404(22):4457–4460.

Conferences Attended

1. IM Kwembur, EE van Dyk, JI Crozier, FJ Vorester, RM Dix-Peek and **MK Munji**, Assessment of Photovoltaic module degradation using Electroluminescence and other optical techniques, 10th ALC student workshop, STIAS Wallenberg research center, Stellenbosch University, South Africa, (December, 2017)
2. The first young scientist MSSEESA conference on material science and Solar cell technology. United Kenya Club, Nairobi, 27th to 30th November, 2013
3. **MK Munji**, W Okullo, EE van Dyk, FJ Vorster, Inaugural conference on nanotechnology and material science development in Kenya, Kenyatta University Conference Center, Kenyatta University, Kenya (July, 2012)
4. **MK Munji**, W Okullo, EE van Dyk, FJ Vorster, Solar cell parameter extraction from illuminated current-voltage data using particle swarm optimization, 55th South Africa Institute of Physics Conference, CSIR, Pretoria, South Africa 27th Sept, to 4th Oct, 2010
5. **MK Munji**, W Okullo, EE van Dyk, FJ Vorster, Variation of device parameters of multi-crystalline silicon solar cells on defects regions, 55th South Africa Institute of Physics Conference, CSIR, Pretoria, South Africa, 27th Sept, to 4th Oct, 2010
6. **MK Munji**, W Okullo, EE van Dyk, FJ Vorster, Solar cell parameter extraction from spot illuminated light beam induced current data, 3rd ALC student symposium, Zevenwacht wine estate, South Africa, 23rd - 26th September, 2010
7. **MK Munji**, EE van Dyk, FJ Vorster, Inhomogeneities in silicon-based back-contact concentrator photovoltaic devices, 24th European Union Photovoltaic Solar Energy conference (EUPVSEC),

Hamburg, Germany, 20th-26th September, 2009

8. **MK Munji**, EE van Dyk, FJ Vorster, Analysis of back point-contact silicon cell maps from Solar-Light Beam Induced Current (S-LBIC) measurement, 54th South Africa Institute of Physics Conference, UKZN, South Africa, 6th-11th July, 2009
9. **MK Munji**, M. Mwamburi, EE van Dyk, FJ Vorster, Application of an algorithm for extraction of electrical parameters of multi-crystalline silicon solar cells, 2nd ALC student symposium, Kariega game reserve, South Africa, 2th-5th July, 2009
10. **MK Munji**, EE van Dyk, FJ Vorster, Experimental analysis and modeling of the I-V characteristics of photovoltaic solar cells under solar spectrum spot illumination, Conference on Photonic materials, Mabula game reserve, South Africa, 23rd - 25th March, 2009
11. **MK Munji**, EE van Dyk, FJ Vorster, Laser Beam Induced Current analysis of surface defects and grain boundaries in Edge defined Film-fed Growth silicon solar cell, 1st ALC student symposium, Kariega game reserve, South Africa, 7th – 9th May, 2008

Papers presented in Conferences

1. IM Kwembur, EE van Dyk, JI Crozier, FJ Vorester, RM Dix-Peek and **MK Munji**, Assessment of Photovoltaic module degradation using Electroluminescence and other optical techniques, 10th ALC student workshop, STIAS Wallenberg research center, Stellenbosch University, South Africa, (December, 2017)
2. N Kwarikunda, EE van Dyk, FJ Vorster, W Okullo and **MK Munji**, Integrating spectral measurements into solar light beam induced current (S-LBIC) measurements.
3. N Kwarikunda, EE van Dyk, FJ Vorster, W Okullo and **MK Munji**, Application of LBIC measurements for characterization of triple junction solar cells, 5th Conference on Photonic Materials, Kariega Game Reserve, South Africa (May 2013).
4. P Kinyua, R J Musembi and **MK Munji**, Stability Monitoring of $\text{Sn}_x\text{Se}_y/\text{ZnO}:\text{Sn}$ solar cells prepared by resistive evaporation, ANSOLE Mini-Symposium in Kenya, University of Nairobi, Kenya (May, 2013)
5. N. Kwarikunda, E.E. van Dyk, F.J. Vorster, W. Okullo and **M.K. Munji**, Integrating spectral measurements into solar light beam induced current (S-LBIC) measurements. 5th ALC student workshop, Hotel Safari, Windhoek, Namibia (November, 2012)
6. W Okullo, **MK Munji**, EE van Dyk, FJ Vorster, Analysis of Degradation of CPV Cells using Laser Beam Induced Current Measurements, 4th African Laser Centre Student Workshop, Zevenwacht Wine Estate, Stellenbosch, South Africa (November 2011).
7. R.D. Schultz, F.J. Vorster, **M.K. Munji** and E.E. van Dyk, Analysis of degradation of CPV cells using solar light beam induced current measurement, European Materials Research Society (EMR-S) conference, Nice France, 9th-13th May, 2011.
8. BA Butler, EE van Dyk, FJ Vorster, **MK Munji**, W Okullo, P Booysen Characterization of a Low Concentrator Photovoltaics Module 4th Conference on Photonic Materials, Kariega Game Reserve, South Africa (May 2011).
9. W Okullo, **MK Munji**, EE van Dyk, FJ Vorster, Spectral characterization of photovoltaic devices,

55th South Africa Institute of Physics Conference, CSIR, Pretoria, South Africa 27th Sept, to 4th Oct, 2010

10. EE van Dyk, BA Butler, FJ Vorster, **MK Munji**, W Okullo, P Booysen, Characterization of a low concentrator photovoltaic module, 55th South Africa Institute of Physics Conference, CSIR, Pretoria, South Africa 27th Sept, to 4th Oct, 2010

11. W Okullo, **MK Munji**, EE van Dyk, FJ Vorster, Characterization of CIGS and mc-Si photovoltaic modules, 3rd ALC student symposium, Zevenwacht wine estate, South Africa, 23rd - 26th September, 2010

POSTGRADUATE THESIS SUPERVISION AND EXAMINATION

Thesis supervision

Msc (Physics), Msc (Materials Science) and Msc (Electronics and Instrumentation)

Graduated 2013

1. I56/20426/2010, Morko Kwembur Isaac, Design and fabrication of current-voltage curve meter for electrical characterization of photovoltaic modules
2. I56/CE/15221/2008, Collins Shikali Ndega, Radionuclide content of sands used for construction Dr. W. Ambusso Graduated in in Kakamega and associated indoor radon diffusion doses
3. I56/CE/22385/2010, Nyaga Muriithi Symon, System sizing of solar energy requirement for an 'all-direct current' standalone telecommunication system

Graduated 2014:

1. I56/14298/2009, Nyaga Peter Kinyua, Stability monitoring of SnxSey/ZnO:Sn solar cell prepared by resistive evaporation method
2. I56/CE/22375/2010, Mukere Moffat Kiruthu, Sizing a standalone photovoltaic electrical solar system for domestic consumption
3. I56/23507/2011, Musila Nicholas Muendo, Characterization of low cost TiO₂based dye-sensitized solar cell prepared by screen printing method

Graduated 2015:

1. I56/CE/22404/2010, Opiyo Samwel Olaka, Investigating effect of Zn doping on In₂Se₃thin film for phase change random access memory (PRAM) applications
2. I56/CE/22374/2010, Patrick Mwinzi Mwathe, Effect of surface passivation on doped tin (IV) oxide thin films for gas sensor application
3. I56/7707/2002, Francis Mwaura Ng'ang'a, Measurements and evaluation of radio frequency radiation at cellular base station
4. I56/CE/22378/2010, Njeru Elosy Gataka, Performance evaluation of silicon based photovoltaic modules found in the Kenyan market
5. I56/21439/2012, Josephat Waithuki Kariuki, Analysis of Microstrip Antenna Using Arbitrarily Shaped

Patches Having Similar Surface Area

6. I56/CE/20980/2010, Nyangaresi P. Onkundi, Characterization of SnO₂:Al-ZnO:Al p-n Junction Deposited by Spray Pyrolysis Technique for LED Application

Graduated 2016:

1. I56/CE/22377/2010, Obare Benard Mosoti, Characterization of Cu_xN_y and CdO:Al thin films for solar cell applications
2. I56/CE/22416/2010, Mogunde Charles Moraro, Optical and electrical characterization of Cd_xSe_{1-x} and Cu₂S thin films for solar cell application
3. I56/CE/26184/2011, Kang'ethe Michael, Optical, Electrical and Structural Analysis of Cd_{1-x}Fe_xS/CuS p-n Junction for Solar Cell Application
4. I56/CE/26617/2011, Mugambi Nelson, Characterization of Tin Selenide : Nickel-doped Tin Prepared by Spray Pyrolysis for Photovoltaic Application
5. I56/CE/25987/2011, Gitonga John Mbae, Analysis of Optimized Deposition Temperature of ZnO:Al Thin Films on Sn_xSe_y/ZnO:Al p-n Junction Solar Cell
6. I56/CE/26614/2011, Riungu Geoffrey Gitonga, Characterization of Sn_xSe_y:SnO₂-Co p-n Junction Deposited by Spray Pyrolysis for Photovoltaic Application
7. I56/21149/2010, Nyasani Eric Isaboke, Wind energy assessment as a potential alternative energy source in Kisii and Kisumu towns in Kenya

Graduated 2017:

1. I56/CE/11000/2006, Andrew Yotui Chepyegon, Sound compression by modified discrete cosine transform: the MP3 coding standard
2. I56/CE/22773/2010, Kennedy Muchiri, A Simple Manual Digital to Analogue Decoder Design for Analogue TV Reception
3. I56/CE/26186/2011, Ephantus Nyaga Njeru, Characterization of Cd_xSe_{1-x}S/Cu₂S p-n Junction for Solar Cell Application Prepared by Chemical Bath Deposition Method
4. I56/CE/26613/2011, Omwansu O. Wycliffe, Solution-based Fabrication of Ni_xO/Ti_{1-x}/CeO₂-TiO₂ Nanostructured Thin Film for Energy-efficient Applications in Smart Window

Graduated 2018:

1. I56/CE/22400/2010, Duke Ateyh Oeba, Electrical and optical characterization of Cu₄SnS₄ and CdS:B thin films for photovoltaic applications
2. I56/20406/2012, Magare O. Robert, Fabrication and Characterization of TiO₂/In(OH)_xS_y/SnS Composite ETA Solar Cell
3. I56/CE/22398/2010, Edward Omuga Ntambo, Study of SnS and CdXZn_{1-X}S Thin Film Deposited by Spray Pyrolysis for Photovoltaic Applications
4. I56/CE/28336/2013, Ndwiga Nicholus Kariuki, Design and construction of a PIC microcontroller-based five degree of freedom robotic arm using servo-motors
5. I56/CE/26623/2011, Irungu Moses Kahura, Design and fabrication of a microcontroller based smart door lock

On Going Projects and thesis supervision

Msc (Physics), Msc (Materials Science) and Msc (Electronics and Instrumentation)

1. Nyakiti Kevin Ochieng, I56/CE/22395/2010, Investigating characterization of SnSe-ZnS:Al p-n junction thin film for solar cell application
2. Kabaraka James Otieno, I56/22402/2010, Influence of i-ZnO buffer layer on Cu₂O-ZnO:Al p-n junction for solar cell applications
3. Onyango Edwin, I56/CE/14132/2009, Increasing the Efficiency of the Dye-Sensitized Solar Cells by Incorporating Imidazolium Salts
4. Kirui Geoffrey Kipkemoi, I56/20422/2010, Analysis of Effect of Substrates on the Radiation of Rectangular Microstrip Antenna Array of Various Patch Sizes
5. Chumo K. Cosmas, I56/CE/14136/2009, Optical and Electronic Characterization of CuS and CdS:B Thin Films For Solar Cell Application
6. Sarah Aseda, I56/20404/2012, Reduction of Errors Caused by Cross-Polarization In A Microchip Antenna
7. Shikambe R. Tsisambo, I56/CE/14120/2009, Optical and Electrical Characterization of Cd_xNi_{1-x}S and Sb₂S₃ Thin Film for Photovoltaic Applications
8. Ndonge Sally Mutheu, I56/CE/23512/2011, Effects of Substrate Deposition Temperature on the Properties of Sn_xSe_y/ZnO:Sn Thin Film Solar Cells
9. Muchangi Philip M. M., I56/CE/26172/2011, Effect of Deposition Temperature on the Properties of Al Doped SnO₂ in Sn_xSe_y-SnO₂:Al p-n Junction Solar Cell
10. Kineene Miriam M., I56/23514/2011, Synthesis and characterization of Niobium Oxide Thin Film for DSSC Application
11. King'ang'i James Mwiti, I56/CE/22372/2010, Characterization of CuO/ZnO:Al P-N junction for solar cell application
12. Onger Evans Machuki, I56/CE/26169/2011, Characterization of CuO₂/SnO₂:F P-N Junction for Solar Cell Applications
13. Majau Agriphina Mugure, I56/24240/2013, Design and fabrication of an autonomous line follower robot capable of picking and dropping objects from one point to another
14. Okinyi Dennis Ombagi, I56/CE/24511/2012, Characterization of SnS/SnO₂:Sb P-N junction for solar cell applications
15. Omwoyo Jared Gisemba, I56/CE/24509/2012, Characterization of Cu₂S/SnO₂:F P-N junction for solar cell applications
16. Nafuna Elizabeth Wanyonyi, I56/CE/24489/2012, A novel synthesis and characterization of dyes in TiO₂ matrix for low cost solar energy conversion
17. Wekesa Evelyne Nafula, I56/CE/24513/2012, Investigation of temperature effect on hydrothermal synthesized nanoparticles Dye Sensitized Solar Cell
18. Kereu Shem, I56/24958/2013, Optical and electrical characterization of ZnS:In /CuS thin films grown by CBD technique for solar cells

19. Magare Aondo Douglas, I56/27970/2014, Design and analysis of microstrip antenna for 2.4GHz applications
20. Lydiah M. Kinari, I56/CE/26629/2011, Analysis of SnO₂:F/ZnO Nano composite for Gas Sensing Application
21. Kisavi Peter Kioko, I56/CE/28363/2013, Design and fabrication of an adaptive sensor control device
22. Mirriam Mumbua Muema, I56/27930/2014, Analysis of optical and electrical properties of CuO/SnO₂:F nanocomposite for carbon monoxide gas sensor application
23. Nyaga Janeleah Wanja, I56/CE/28337/2013, Design of a microcontroller based home access system using a GSM module
24. Mwoha Paul Irungu, I56/CE/28332/2013, Design and construction of a microcontroller-based human audial noise monitoring system
25. Ontita Zachariah Monda, I56/CE/24517/2012, Fabrication and characterization of SnS-SnO₂:F P-N junction for solar cell applications
26. Nyabuto Achuka Denis, I56/CE/28333/2013, Optical and electrical characterization of Sb₂S₃ and In₂O₃:Sn thin films for photovoltaic applications prepared by solution growth technique
27. Gichuru Martin Gitonga, I56/30742/2015, Optical and electrical characterization of ZnO/TiO₂ based dye-sensitized solar cell

PhD supervision from 2016 to present

1. Musila Nicholas Muendo, I84/32270/2015, Characterization and efficiency improvement studies of TiO₂ based dye-sensitized solar cells
2. Muchira Irene Wanjiku, I84/32275/2015, Crystallization kinetics and structural properties of In-Se-Bi thin films for reversible phase change memory (PRAM) applications
3. Makunda Crucifixa Maloba, I84/32274/2015, Optical and electrical characterization of poly(3,hexylthiophene): phenyl (carbon60butyric acid methylester polymer blends doped with hexagonal boron nitride for solar cell applications
4. Nyakundi Evans Makori, I84/32281/2015, Effects of deposition pressure on optical and thermal-electric of Nitrogen doped tin selenide thin film prepared by thermal evaporation

Co-Promoter

1. Kwembur Mokwo Isaac: (2017 – Present) Nelson Mandela University, South Africa,

Thesis Examination

Internal Examiner (Msc)

1. Muchira Irene Wanjiku, I56/20423/2010, Crystallization kinetics of In_xSe_y thin films for phase change memory (PRAM) applications
2. Augustine Ketko, I56/CE/14118/2009, Effect of petroleum products spillage on environment
3. Benard Riro Morumbwa, I56/10991/2006, Fabrication of portable spectrometers to investigate optical properties of thin film

4. Masinde T. Sangura, I56/15645/2005, Multivariate chemometric analysis of radionuclide and heavy metal fluxes in shore sediment at port Victoria, Kenya
5. Ogaro Elijah Nyakang,o, I56/CE/10992/2006, Phase shifting diffraction interferometer for absolute calibration of optical flats
6. Mose Rose Gesare, I56/CE/11459/2008, Design and fabrication of a substrate holder controlled using Lab View validated by deposition of Cu_xN
7. Murori Francis Kamau, I56/CE/14134/2009, Design and fabrication of computer based metal detection system for security applications
8. Shivachi Newton Shuma, I56/CE/14110/2009, Design and fabrication of a microcontroller based carbon monoxide monitoring and mapping system using GPS technology
9. Munguti Lawrence Kioko, I56/CE/10994/2006, Characterization of $\text{Sn}_x\text{Se}_y/\text{ZnO}:\text{Sn}$ P-N junction for solar cell applications
10. Mosiori Cliff Orori, I56/12236/2009, Electrical and optical characterization of $\text{Cd}_x\text{Zn}_{1-x}\text{S}$ and PbS thin films for photovoltaic applications
11. Mbithi Nelson Matheka, I56/CE/11500/2007, Mechanical properties and thermal degradation of blends of bitumen and cellulose
12. Otieno George Were, I56/CE/10382/2007, Mechanical, diffusion and degradation properties of blends of cellulose and recycled low density polyethylene
13. Kamau Charles Muthui, I56//CE/11177/2007, Nitrogen doping effect on tin-selenium thin films from phase change memory applications
14. Korir Patrick Kiprono, I56/CE/11186/2007, Mechanical, diffusion and degradation behaviour of polypropylene and cellulose blends
15. Moustapha Kassim, I56/CE/11420/2007, Magnetic studies of iron ore mineral deposits in Mbeu area, Meru county
16. Dorcus Nthoki Mulumba, I56/CE/15669/2005, Study and design of a mobile phone-based route prediction optimizer for a security application
17. Elijah Daniel Okelo, I56/CE/11179/2007, Gamma ray spectrometry analysis of the naturally occurring radionuclides in sand samples from sand mines on the shores of lake Victoria in Migori county, Kenya
18. Stanley Kibet Kitur, I56/CE/15635/2005, Design and fabrication of general aperture coupled microstrip antennas with arbitrarily shaped apertures
19. Mwenda Dickson Kinyua, I56/CE/10490/2008, Interferometric analysis of the cellophane sheet for broad band application in phase retardation
20. Nyakundi Makori Evans, I56/CE/11486/2008, Characterization of $\text{SnSe}-\text{CdO}:\text{Sn}$ P-N junction for solar cell applications
21. Vincent Onyancha Abuga, I56/CE/15208/2008, Geophysical investigation of Mbeu iron ore deposit in Meru county using gravity method
22. Mutunga J. Mutungi, I56/CE/22274/2012, Assessment of Natural Radioactivity Concentration Levels in Geological Samples Collected in Selected Areas in Makueni County
23. Njoroge David Kimemia, I56/24956/2013, Fabrication and characterization of a graphite dispersed Titanium Dioxide Solid Solar Cell
24. Margaret Mwaura Muria. Performance of a Double Reflector Solar Box Cooker with Phase Change

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25. Ombati Dennis, I56/CE/23417/2012, Geophysical investigation in Rongo gold mining area in Migori county using resistivity method
26. Kago James Ndungu, I56/CE/28347/2013, Elastic scattering of electron by Barium atom using distorted wave method
27. Keng'werere Joshua Mose , I56/CE/10899/2008, Design and fabrication of a dual-resistive evaporation system controlled using Lab-View
28. Kamau Samuel Githira, I56/26190/2011, Effects of *aspergillus niger* on Mechanical, Diffusion and Thermal Degradation Properties of Low Density Polyethene
29. Wekunda B. Z. Buya, I56/13090/2005 In_xSe_y Alloy Thin Films For Phase Change Random Access Memory (Pram) Applications
30. Kimonyi Shadrack Muthoka, I56/20369/2010, Design of an Automatic Intelligent Room Light Controller with Bidirectional Counters for Energy Efficiency Application
31. Choge Hillary Kirwa, I56/CE/15629/2005, Optical and Electrical Characterization of ZnSe-Cu_xO_y Thin Films for Solar Cell Applications.
32. Kamunde Karimi Betty, I56/24516/2012, Assessment of radiation exposure levels associated with sand used for construction in Tharaka region, Tharaka-Nithi county
33. Mwangi Peter Ngugi, I56/24955/2013, A low cost water meter system based on global system for mobile communication
34. Vincent Onyango Othieno Nunda Agutu, I56/CE/23526/2011, Effect of exchange and absorption potential in the distorted wave calculation of electron impact excitation of auto ionizing state of rubidium
35. Joseph Ayieta Warega, I56/CE/24502/2012, Geothermal prospection of Ol Karia dome areas in Naivasha, Nakuru county using gravity method

External Examiner

1. Awany Denis, 2012/HD13/685U, Energy Yields of Selected Photovoltaic Modules of Different Technologies in Kampala, Uganda. Msc. Makerere University, Uganda, 2015
2. Baira John, 2009/HD13/15588U, Device Performance Parameter Extraction from I-V Characteristics of Selected Photovoltaic Modules in Ugandan Market, Msc. Makerere University, Uganda, 2013
3. Obbo Moses, 2012/HD13/681U, Development of a Low Cost Large Area Laser Beam Induced Current System. Msc, Makerere University, Uganda, 2015
4. Okello Alex, 2008/HD13/13500U, Performance Evaluation of Poly-Crystalline Silicon Photovoltaic Modules in the Ugandan Market, Msc. Makerere University, Uganda, 2013
5. Lucian John-Ross Bezuidenhout, On characterization of photovoltaic device parameters using light beam induce current measurement, Msc. Nelson Mandela Metropolotan University, South Africa, 2014
6. Nicholas Kwarikunda: On the characterization of solar cells using light beam induced current measurements. PhD, Nelson Mandela Metropolitan University, South Africa, 2015.

Concepts papers and funding Proposals written

1. Principal Investigator, Kenya on Large Area Laser Beam Induced Current characterization of photovoltaic modules. CSIR NATIONAL LASER CENTRE / DST ALC RESEARCH GRANT, 2011 to present. Renewable annually. 2019/2020 grant was R70,200
2. Correlation of opto-electric properties of photovoltaic modules with outdoor performance. The project on the correlation of opto-electric properties of photovoltaic (PV) modules with outdoor performance, deals with important aspects of PV device characterization. The key objective of the proposed collaboration is to extend the knowledge base of PV technology. JOINT RESEARCH GRANT UNDER THE SOUTH AFRICAN/KENYA –RESEARCH PARTNERSHIP PROGRAMME BILATERAL AGREEMENT 2011. Project funding not successful

Community Service

1. Member of Reformed Church of East Africa , Tiripkatoi Local Church. Elected to Local church council, position Vice Chairperson, 2011 to present.
2. Member, Kipkuyang Secondary School, Board of Management. 2014 to present
3. Member Tugumoi Secondary School Board of Management, 2013 to present

LANGUAGES

Kiswahili, Speak fluently and read/write with proficiency

English, Speak fluently and read/write with high proficiency

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