

CURRICULUM VITAE

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Prof. Francis Wanjala NYONGESA (Ph.D)

PROFESSION: Physicist

ACADEMIC POSITION: Associate Professor, Department of Physics, University of Nairobi, Kenya.

ADMINISTRATIVE POSITION: Chairman, Department of Physics, University of Nairobi.

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BIODATA

PLACE OF BIRTH: Kakamega County, Kenya.

NATIONALITY: Kenyan.

MARITAL STATUS: Married with 3 children.

LANGUAGES: English, Kiswahili, conversant with French.

ADDRESS: Department of Physics, University of Nairobi, P.O. Box 30197 -00100 Nairobi, Kenya.

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COUNTRIES VISITED: United States of America (USA), Japan, Germany, Italy, China, South Africa, Ghana, Ethiopia, Uganda, Tanzania.

1. BIODATA

Prof. Francis Nyongesa Wanjala holds a PhD in Physics and he is currently serving as the academic Chair of the Department of Physics of the University of Nairobi. He obtained his PhD in Physics (UoN) in 2000. Prof. Francis Nyongesa is an accomplished scholar with proven track record in research and training as demonstrated by his publications in peer review journals and supervision and mentorship of postgraduate student. He has over 22 research publications in Material Science and Renewable Energy in refereed journals and over 15 oral presentations in international conferences in the following countries: United States of America (USA), Japan, Germany, Italy, China, South Africa, Ghana, Ethiopia, Uganda and Tanzania. He has supervision and mentorship many postgraduate students. His research interest include: Functional Materials for Energy Efficient Systems, Solar Energy Materials (Perovskite Solar Cells, Dye Sensitized Solar Cells (DSSCs), and applications of Nanotechnology for Water Purification Systems.

He is a recipient of the Third World Academy of Science (TWAS) Award for Young Scientist in 2007 for his contribution in scientific publications in Physics and several fellowships and research grants including: The PASET-RSIF Research Grants Award for PhD Program in 2020, the PASET-RSIF Capacity Building Grants Award in 2020, the National Science, Technology & Innovation (ST&I) Research grant

(NACOSTI) in 2012, the U.S-Africa Materials Institute (USAMI) visiting fellowship at Princeton University (USA) in 2008 and the Abdus Salam Young Student Fellowship (Trieste, Italy) in 1999. He is among the founder members of the Global Young Scientists Academy (GYSA). He is a member of African Materials Research Society (AMRS) and the Ultrasonic Nondestructive Testing (NDT) Society of Kenya among others. He has served on the editorial board of the African Journal of Physical Sciences (AJPS) and the Tanzania Journal of Science.

2. LEADERSHIP AND MANAGEMENT POSITIONS HELD

Prof. Francis Wanjala Nyongesa has over 12 years of experience in management and leadership positions in the University and in Society:

	MANAGEMENT POSITION	PERIOD
1	Chairman, Department of Physics, University of Nairobi	2019 to present
2	Coordinator, ODeL Science Program, College of Biological and Physical Sciences (UoN).	2008 – 2019
3	Coordinator, Industrial Electronics Unit (IEU), UoN.	2008 – 2013
4	Assistant Coordinator, Industrial Electronics Unit (IEU), UoN.	2002 – 2008

3 MEMBERSHIPS OF BOARDS, COMMITTEES AND OTHER ORGANS OF THE UNIVERSITY

- University of Nairobi Senate: From 2012 to present.
- Senate Representative, CBPS College Academic Board - from 2018
- Senate Representative, School of Physical Sciences - from Oct, 2010 to 2018
- Member of ODeL Board from June 2019 to June 2020
- Member, College Academic Board (CBPS) from 2008
- Member of The School of Physical Sciences Management Committee from 2008
- Member of College Timetabling Sub - Committee (CBPS). 2009 to 2019
- Undergraduate (1ST, 2ND and 3rd year) Physics Laboratory Coordinator
- Chaired a number of Technical Evaluation Committees
- Member of the college (CBPS) Exhibitions Committee.

4. ACADEMIC APPOINTMENTS

	POSITION & RESPONSIBILITY	PERIOD	ORGANIZATION AND PLACE
1	Assoc. Professor	2016 –	Department of physics, University of Nairobi
2	Senior Lecturer	2005 – 2016	Department of physics, University of Nairobi
3	Lecturer	2001 – 2005	Department of physics, University of Nairobi
4	Tutorial Fellow	1996 – 2001	Department of physics, University of Nairobi
5	Graduate Assistant	1994 – 1996	Department of physics, University of Nairobi
6	Research Fellow	2008	USAMI, Princeton University, NJ, USA
7	Junior Associate	1999	International Centre for Theoretical Physics (ICTP), Italy
8	Member of the Editorial Board	2019 to present	Tanzanian Journal of Science
9	Member of the Editorial Board	2015 to present	African Journal of Physical Sciences

5. ACADEMIC QUALIFICATIONS AND COMPETENCY DEVELOPMENT

5.1 Academic Qualifications

INSTITUTION	PERIOD	QUALIFICATIONS/GRADE
University of Nairobi	1996 – 2000	Ph. D (Material Science) by Thesis, University of Nairobi, Kenya.
University of Nairobi	1991 – 1994	M.Sc. (Physics) by Thesis, University of Nairobi, Kenya
University of Nairobi	1988 – 1991	B.Sc. (Physics), University of Nairobi, Kenya
St. Mary's School Yala, Kenya	1987 – 1988	Kenya Advanced Certificate of Education (KACE), Passed with 3 principles and 1 sub
Mothers of Apostles Seminary, Eldoret, Kenya	1981 – 1985	Kenya Certificate of Secondary Education (KCSE Passed with Div. 1

Lwanda Primary School, Kakamega County, Kenya	1980 – 1981	Kenya Certificate of Primary Education (KCPE)
Ortum Boys School, West Pokot County, Kenya	1977 – 1979	
Makonge Primary School, Uasin Gishu County, Kenya	1975 – 1976	

5.2 Professional Trainings & Competence Development

	PERIOD	ORGANIZATION & COMPENTENCY DEVELOPED	CERTIFICATE OBTAINED
1	May 2019	• Pedagogy, Andragogy and Mentorship Training (UoN)	Certificate
2	Oct, 2007	• Pedagogy and Andragogy Training (UoN)	Certificate
3	Nov 2017	• Ph.D Supervision Workshop (Consortium for Advanced Research Training in Africa (CERTA))	Certificate
4	Nov 2016	• Ph.D Supervision Workshop (University of Nairobi)	Certificate
5	1988	• Pre-University Training Programme (National Youth Service, Gilgil, Kenya)	Certificate
6	June, 2016	• Grant proposal writing (University of Nairobi)	Certificate
7	Sept, 2011	• Grant proposal writing (University of Nairobi)	Certificate

6 PROFESSIONAL AFFILIATIONS

- Among the founding Members of the Global Young Scientists Academy (GYSA)
- Member of the Ultrasonic Nondestructive Testing (NDT) Society of Kenya
- Member of Kenya DAAD Scholars Association
- Member of Editorial Board of Tanzania Journal of Science
- Member of Editorial Board of African Journal of Physical Sciences

7.1 Research Grant Awards

1. PASET-RSIF Research Grants Award for PhD Program.

Title: “Research and Development of Photovoltaics Based on Lead-Free Perovskite Solar Cell Technology”

Name of Project Leader:

Francis Nyongesa; Associate Professor, Department of Physics, University of Nairobi

Team Composition:

- a) Julius Mwabora; Professor , Department of Physics, University of Nairobi.
- b) Prof. Gen Tatara, RIKEN, Japan;
- c) Prof. Shaimaa Ali Mohamed, Zewail City of Science & Technology (Egypt)
- d) Dr. Victor Odari, Masinde Muliro University, Kenya

Grant Amount: US\$90,000.

Period: 3 years (2020 – 2023)

2. PASET-RSIF Research Grants Award for PhD Program.

Title: “Capacity Building for University-Industry Business Technology Transfer

Name of Project Leader:

Julius Mwabora; Professor , Department of Physics, University of Nairobi.

Team Composition:

- a) Francis Nyongesa; Associate Professor, Department of Physics, University of Nairobi.
- b) Prof. Francis Mulaa; Professor & Director, Intellectual Property, Department of Biochemistry, University of Nairobi.
- c) Dr. Tonny Omwansa; Senior Lecturer & Director, C4D, School of Computing and Informatics, University of Nairobi.
- (d) Dr. Sebastian Waita; Senior Lecturer, Department of Physics, University of Nairobi.

Grant Amount: US\$50,000.

Period: 3 years (2020 – 2023)

3. Science, Technology & Innovation (ST&I) Research grant for 2012/2013 by NACOSTI:

Project Title: “Development of Nanoporous Ceramic Membrane for Domestic water Filters”

CO-RESEARCHERS: Dr. F. Otieno & Prof. Chacha (Narok University), & Selina (Kabianga University)

Grant Amount: KShs. 7,000,000.

Period: 3 years (2015 – 2018)

7.2 Other Awards and Fellowships

4. 2007 Third World Academy of Science (TWAS) Award for Young Scientists in Physics
5. Academic Host, USHEPiA FELLOWSHIP; August- November 2002
6. Abdus Salam Young Student Fellowship (Trieste, Italy); March – June 1999
7. DAAD Postgraduate Fellowship (University of Nairobi, Kenya); 1996 – 1999
8. University of Nairobi Postgraduate Scholarship; 1991 – 1994

8. ACADEMIC & RESEARCH EXPERIENCE

8.1 Areas of Research Experience

- Microstructure - Material property relationships in materials (ceramics, composites).
- Functional Materials for Energy Efficiency Systems such as thermal insulators
- Photovoltaics, Dye Sensitized Solar Cells (DSSCs)
- Electrophoretic Deposition (EPD) of Materials and its applications in Dye Sensitized Solar Cells and in Photocatalytic water purification systems
- Nanotechnology applications in Materials for water purification systems

8.2 Postgraduate Research Supervision and Mentorship

Candidate	Degree	Research Topic
1. Kabir Ahmed Ali, (Chad)	Ph.D	Synthetic and Characterization of Magneto Rheological Nanomaterials for Optical Heat Transfer in Solar Thermal Concentrators and Energy Storage Systems Co-Supervisor: Prof. Julius Mwabora
2. Kasera Alice Achieng	Ph.D	Design and Optimization of an affordable Hybrid vertical axis wind turbine for rooftop applications in national weak grids context. Co-Supervisor: Dr. Ayieta

3. Nguu John Njagi (180/82761/2012) Ph.D (Graduated 2017) Electrophoretic Deposition of TiO₂/Nb₂O₅ Composite Electrode Thin Films for Photovoltaic Application (Co-Supervisors: Prof. B. O. Aduda, Dr. R. J. Musembi)
4. Sr. Mary Taabu Simiyu Ph.D (From 2017) Use of Magnetic Field and Composite Membrane in Improving Pathogen removal in Water Purification Systems. (Co-Supervisors: Dr. Z. Birech, Prof. B. O. Aduda).
5. Joan Talibo Ph.D (From 2017) Electrophoretic Deposition of TiO₂/Al₂O₃ Composite Electrode Thin Films for Photovoltaic Applications.
6. Brian Owuor Owino. (156/88808/2016) M.Sc. (Graduated 2019) Effect of Compact Layer on PV Characteristics of TiO₂/Nb₂O₅ Dye Sensitized Solar Cells (Co-Supervisors: Dr. A. Ogacho, Prof. B. O. Aduda).
7. Okwako Jacinta (156/69292/2013) M.Sc. (Graduated 2019) Optical & Electrical Characterization of Cu₂ZnSnS₄ deposited by SILAR Techniques (Co-Supervisors: Dr. R. J. Musembi, Dr. A. Ogacho)
8. Sheilah J. Bisach (180/82761/2014) M.Sc. (Submitted 2020) Fabrication and Characterization of CdNiS/PbS Solar Cells (Co-Supervisors: Prof. B. O. Aduda, Dr. R. J. Musembi)
9. Paul Ngai (156/81013/15) M.Sc. (Since 2017) Cu₂O -TiO₂ All –Oxides Heterojunction Solar Cells Produced by Chemical Spray Pyrolysis for Photovoltaic Devices (Co-Supervisors: Dr. S. Waita, Prof. B. O. Aduda).
10. Lilian Anyango Owino M.Sc. (Submitted 2020) The Effect of Annealing Ambient on Optical and Electrical Properties of TiO₂O:Ge Thin Films (Co-Supervisors: Dr. S. Waita, Dr. R. J. Musembi).
11. Mogusu Josephat (156/69295/2013) M.Sc.(Submitted 2020) Fabrication and Characterization of Nd:TiO₂ Thin Films for Gas Sensor applications (Co-Supervisors: Prof. B. O. Aduda, Dr. R. J. Musembi)
12. Ndungu Jereffasio (156/76607/2009) M.Sc. (Graduated 2015) Nanoporous Functional Ceramic for Water Filtration (Co-Supervisors: Prof. B. O. Aduda, Dr. A. Ogacho)
13. Nyaga W. G. (156/7155/2003) M.Sc. (Graduated 2006) Electrophoretic Deposition (EPD) of Materials and its Applications in Photocatalysis. (Co-Supervisor: Prof. B. O. Aduda)
14. Njogu M. S. (156/7548/2000) M.Sc. (Graduated 2006) Effect of Organic Binders on Fracture Behaviour of Kaolin Refractories. (Co-Supervisor: Prof. B. O. Aduda)
15. Ogacho A. A. M.Sc. (Graduated 2002) Effects of Plant Derived Binder on Functional Properties & Thermal Shock Resistance of a Kaolinite Refractory. (Co-Supervisor: Prof. B. O. Aduda)

8.3 External Examiner

- Catholic University of Eastern Africa (CUEA): 2012 - 2017

9. SCIENTIFIC PUBLICATIONS

A: Refereed Journals

1. Mary T. Simiyu, **Francis W. Nyongesa**, Bernard O. Aduda, Zephania Birech, and Godwin Mwebaze. (2020). Application of An Organic Plant-Derived Binder in the Fabrication of Diatomaceous Earth Waste- Based Membranes for Water Purification Systems: *MRS Advances* © 2020 Materials Research Society DOI: 10.1557/adv.2020.123
2. Brian O. Owino, **Francis W. Nyongesa**, Alex A. Ogacho, Bernard O. Aduda and Benjamin V. Odari. (2020): Effects of TiO₂ Blocking Layer on Photovoltaic Characteristics of TiO₂/Nb₂O₅ Dye Sensitized Solar Cells. *MRS Advances* © 2020 Materials Research Society DOI: 10.1557/adv.2020.16
3. John Nguu, **Francis Nyongesa**, Robinson Musembi and Bernard Aduda., (2018). Electrophoretic Deposition and Characterization of TiO₂/Nb₂O₅ Composite Thin Films for Dye Sensitized Solar Cells., *Journal of Materials Physics and Chemistry, Vol. 5*. Available online at <http://pubs.sciepub.com/jmpc/5>
4. Jerefasio Nduhiu Ndungu, **Francis Nyongesa**, Bernard Aduda and Alex Ogacho., (2019). Comparison Of The Effectiveness Of Various Designs Of Ceramic Filter Membranes In Domestic Water Purification., *International Journal of Innovative Research and Advanced Studies (IJIRAS)*, Volume 6 Issue 1, Pg 70-73.
5. **Francis Nyongesa**, Bernard Aduda, (2017). Electrophoretic Deposition of Titanium Dioxide Thin Films for Photocatalytic Water Purification Systems. *Advances in Materials*, Vol. 6(4), 2017, pp. 31-37. doi: 10.11648/j.am.20170604.
6. John N. Nguu, B. O. Aduda, **F. W. Nyongesa**, R. J. Musembi, S. M. Njogu and P.M. Mwathe., (2015). Electrical Characterization of Nano-TiO₂/Nb₂O₅ Composite Thin Films Deposited Using Electrophoretic Deposition Technique., *International Journal of Innovative Research in Advanced Engineering (IJIRAE)*., Volume 2(2), 2349-2163.
7. P.M. Mwathe., R. J. Musembi, M. Munji, **F.W. Nyongesa**, B. Odari, W. Njoronge, and B. O. Aduda., (2015). Effect of Annealing and Surface Passivation on Doped SnO₂ Thin Films Prepared by Spray Pyrolysis Technique., *Advances in Materials*., 4(3): 51– 58.
8. John N. Nguu, B. O. Aduda, **F. W. Nyongesa** and R. J. Musembi., (2014). Electrophoretic Deposition of TiO₂/Nb₂O₅ Composite Electrode Thin Films for Photovoltaic Application., *Journal of Energy and Power Engineering*., 8(2014), 757 – 764.
9. John N. Nguu, B. O. Aduda, **F. W. Nyongesa** and R. J. Musembi., (2014). Effect of Process-Related Parameters on Band Gap of Electrophoretically Deposited TiO₂/Nb₂O₅ Composite Thin Films. *African Journal of Physical Sciences*., Volume [1], June 2014, 43-49.

10. John Nguu, Susan Ndivo, Bernard Aduda, **Francis W. Nyongesa**, Robinson J. Musembi: Livestock Farmers' Perception on Generation of Cattle Waste-based Biogas Methane: the Case of Embu West District, *Journal of Energy Technology and Policy*, **4**(8) (2014), 1 - 7.
11. Ismaiel Yakub, Anand Plappally, Megan Leftwich, Karen Malatesta, Katie C. Friedman, Sam Obwoya, **Francis Nyongesa**, Amadou H. Maiga, Alfred B. O. Soboyejo, Stefanos Logothetis and Wole Soboyejo., (2013). Porosity, Flow, and Filtration Characteristics of Frustum-Shaped Ceramic Water Filters, *JOURNAL OF ENVIRONMENTAL ENGINEERING*, 139:986-994.
12. **F. W. Nyongesa**, N. Rahbar, S. K. Obwoya, J. Zimba, B. O. Aduda, and W.O. Soboyejo., (2011). An investigation of Thermal Shock in Porous Clay Ceramics, *ISRN Mechanical Engineering*, DOI 10.5402/2011/816853 – March 2011.
13. N. Rahbar, S. K. Obwoya, J. Zimba, B. O. Aduda, **F. W. Nyongesa**, I. Yakub and W.O. Soboyejo., (2010). Thermal Shock Resistance of a Kyanite-Based (Aluminosilicate) Ceramic, *Experimental Mechanics* DOI 10.1007/s – April 2010.
14. Aduda B.O., **Nyongesa F.W.** and Njogu M. S., (2008). Effect of Plant Derived Organic Binders on The Mechanical Properties of Kaolin - Based Refractories., *Journal of Material Science.*, **43**, 4107 - 4111.
15. Ogacho A. A., Aduda B.O. and **Nyongesa F.W.**, (2006). Thermal Shock Behaviour of a kaolinite refractory prepared using a natural organic binder., *Journal of Material Science.*, **41**, 8276 - 8283.
16. Ogacho A. A., Aduda B.O. and **Nyongesa F.W.**, (2003). Thermal Conductivity of a Kaolinite Refractory; Effects of an Organic Binder., *Journal of Material Science.*, **38**[11], 2293 - 2297.
17. **Nyongesa F.W.** and Aduda B.O., (2004). The Effect of Quartz and Mullite Phases on Strength of Triaxial Porcelain., *East African Journal of Physical Sciences*, **5**[1], 11-24.
18. **Nyongesa F.W.** and Aduda B. O., (2004). Fracture Strength of Porous Ceramics: Stress Concentration versus Minimum Solid Area Models, *African Journal of Science and Technology*, **5**, [1], 19-27.
19. **Nyongesa F.W.** and Aduda B.O., (2001). Ultrasonic Attenuation in Clay Refractories, *Discovery and Innovation*, **13** [1/2], 39 - 47.
20. Aduda B.O. and **Nyongesa F.W.**, (2000). The Role of Aspect Ratio in the Elastic Modulus-Porosity Relationship of a Triaxial Porcelain, *Journal of British Ceramic Transactions*, **99** [5], 206-211.
21. **Nyongesa F.W.** and Aduda B. O., (2000). Effect of Silica Additions on Strength and Elastic Modulus of Kenyan Industrial Clay Ceramics, *East African Journal of Science*, **2** [2], 77-89.
22. Aduda B.O., **Nyongesa F.W.** and Obado G., (1999). Improving the Green and Fired Fracture Strength of a Kaolinite Ceramic using some Vegetable Syrup, *Journal of Material Science Letters*, **18**, 1653-1655.

23. **Nyongesa F.W.** and B.O. Aduda, (1999). Ultrasonic attenuation in Kenyan Clay Refractories., *British Ceramic Transactions*, **98**[6], 266-270.
24. **Nyongesa F.W.** and B.O. Aduda, (1995). An Ultrasonic Nondestructive Evaluation of Clay Refractories, *African Journal of Science and Technology, Series B*, **18**[2], 53-57.

B: Conference Proceeding

1. Mary Taabu, F. W. Nyongesa, B. O. Aduda, Z. Birech (2020). An Assessment of the Use of Static Magnetic Field for Sodium Fluoride Defluoridation and Removal of *Escherichia coli* and Rotavirus Pathogens from Water, 2nd Young Scientists MSSEESA Virtual Conference on Materials for Solar Energy Conversion, University of Nairobi, Kenya, 4th – 6th November, 2020.
2. Brian Owino, F. W. Nyongesa, B. O. Aduda. (2020). Investigation on the Performance and Stability of Cs₃Sb₂I₉ Based Perovskite Solar Cells Employing P3HT and CuSCN Hole Transport Materials; 2nd Young Scientists MSSEESA Virtual Conference on Materials for Solar Energy Conversion, University of Nairobi, Kenya, 4th – 6th November, 2020.
3. Prof. F. W. Nyongesa Prof. Gen Tatara, Prof. S. Ali Mohamed, Prof. A. Hagfeldt, Dr. B. V. Odari, Prof. J. M. Mwabora, Prof. R. J. Musembi. (2020). Research and Development of Affordable Photovoltaics Based on Lead-Free Solar Cell Technology. Poster presented at the Icipe at 50 celebrations, Dec 2020, Nairobi, Kenya.
4. M. Simiyu F. Nyongesa, B. Aduda, Z. Birech, N. Ilin, D. Andala, V. Odari (2020). Strength-Porosity Relationship in Diatomaceous-Based Membranes and the Role of Aspect Ratio in Filtration. 2nd Edition of the CREPAS conference, 14th - 16th December 2020, Université de Lomé. Togo.
5. Lilian Anyanga, Sebastian Waita, Robinson Musembi and F. W. Nyongesa: Effect of annealing atmosphere of the Optical and Electrical TiO₂:Ge thin films, 2nd Young Scientists MSSEESA Virtual Conference on Materials for Solar Energy Conversion, University of Nairobi, Kenya, 4th – 6th November, 2020.
6. Mary T. Simiyu, Francis W. Nyongesa, Bernard O. Aduda, Zephania Birech, Godwin Mwebase, Alex Ogacho and Gloria K. Maitha (2020). Use of Organic Binders and Molasses to Enhance Efficiency of Diatomaceous Earth-Based Ceramic Filters. 3rd CBPS Annual Research week on *Sciences and cross disciplinary research and practices transforming society for sustainable development*, University of Nairobi, 14th-16th Oct 2020.
7. Brian Owino, A. Ogacho, **F. W. Nyongesa**, B. O. Aduda, Victor O. (2019). Effect of TiO₂ Compact Layer on Photovoltaic Characteristics of TiO₂/Nb₂O₅ Dye Sensitized Solar Cells. 10th International Conference of the African Materials Research Society (AMRS2019), Arusha, Tanzania, 10 – 13 December 2019.
8. Mary T. Simiyu, **Francis W. Nyongesa**, Bernard O. Aduda, Zephania Birech and Godwin Mwebaze. (2019). Application of An Organic Plant-Derived Binder in the Fabrication of Diatomaceous Earth Waste-Based Membranes for Water Purification Systems. 10th

International Conference of the African Materials Research Society (AMRS2019), Arusha, Tanzania, 10 – 13 December 2019.

9. Charles O. Ayieko, Robinson J. Musembi, Benard O. Aduda, Alex Ogacho, **Francis W. Nyongesa** and Pushpendra Jain. (2019). Photo-thermal Conversion Efficiency of Textured and Untextured Aluminum Substrate Coated with Titanium Dioxide (TiO₂)-bound CuFeMnO₄ Absorber. 10th International Conference of the African Materials Research Society (AMRS2019), Arusha, Tanzania, 10 – 13 December 2019.
10. Brian Owino, A. Ogacho, **F. W. Nyongesa** and B. O. Aduda (2019). Effect of Compact Layer on PV Characteristics of TiO₂/Nb₂O₅ Dye Sensitized Solar Cells. *Material Science and Solar Energy Network for Eastern and Southern Africa (MSSEESA): -Postgraduate Students Seminar, University of Nairobi, Kenya. October 16 -17, 2019.*
11. Sis. Mary Taabu, **F. W. Nyongesa**, Birectch, B. O. Aduda (2019). Use of organic binders and Diatomaceous Earth waste in improving mechanical property of ceramic membranes. *Material Science and Solar Energy Network for Eastern and Southern Africa (MSSEESA): -Postgraduate Students Seminar, University of Nairobi, Kenya. October 16 -17, 2019.*
12. Jacinta Okwako, Alex Ogacho, Robinson Musembi, **Francis Nyongesa**, Godwin Asimwe Mwebaze. (2018). Effects of Dipping Cycles on the Optical and Electrical characterization of CZTS., *Joint Material Science and Solar Energy Network for Eastern and Southern Africa (MSSEESA) and DAAD International Conference on Material Science Research for Sustainable Energy in Africa, September 26 -27, 2018, University of Nairobi, Kenya.-Oral Presentation.*
13. Josephat Mogusu, Robinson Musembi, **Francis Nyongesa** and Alex Ogacho. (2018). Fabrication and Characterization of Nb:TiO₂ Thin Film for Gas Sensor Application., *Joint Material Science and Solar Energy Network for Eastern and Southern Africa (MSSEESA) and DAAD International Conference on Material Science Research for Sustainable Energy in Africa, September 26 -27, 2018, University of Nairobi, Kenya.*
14. Brian Owino, **Francis Nyongesa**, Alex Ogacho and Bernard Aduda. (2018). Effects of TiO₂ compact layer on PV characteristics of TiO₂/Nb₂O₅ dye sensitized solar cells. *Joint Material Science and Solar Energy Network for Eastern and Southern Africa (MSSEESA) and DAAD International Conference on Material Science Research for Sustainable Energy in Africa, September 26 -27, 2018, University of Nairobi, Kenya.-Oral Presentation.*
15. Mary Taabu Simiyu, **Francis Nyongesa**, Bernard Aduda, Zephania Birech, Godwin Mwebaze. (2018). Use of Diatomaceous Earth Wastes and Plant derived Binders in Water Purification Systems., *Joint Material Science and Solar Energy Network for Eastern and Southern Africa (MSSEESA) and DAAD International Conference on Material Science Research for Sustainable Energy in Africa, September 26 -27, 2018, University of Nairobi, Kenya.-Oral Presentation.*
16. Jacinta Okwako, Alex Ogacho, Robinson Musembi, **Francis Nyongesa**, Bernard Aduda., (2017). Effect of Annealing on Structural and Optical Properties of CZTS thin films Deposited by SILAR Technique., *ANSOLE DAYS., May, 5 – 8, 2017, Tunisia.*
17. **F. W. Nyongesa**, B. O. Aduda and A. A. Ogacho., (2015), Organic binders to Enhance fuel Efficiency of Ceramic Charcoal Stoves (*jikos*) and in water filters, **8TH INTERNATIONAL**

18. **F. W. Nyongesa**, B. O. Aduda., Hilonga D, and A. A. Ogacho., (2013), Functional Materials for Energy Efficient Ceramic Charcoal Stoves (*jiko*) and Water Filters, 7TH INTERNATIONAL CONFERENCE OF THE AFRICA MATERIALS RESEARCH SOCIETY (A-MRS): December 8-13, 2013, Addis Ababa, ETHIOPLA – Oral Presentation
19. J. Ndungu., **F. W. Nyongesa.**, A. A. Ogacho and B. O. Aduda., (2013). Nanoporous ceramics for Water Filtration., 1ST Young Scientists' MSESSESA Conference on Material Science and solar Cell technology, United Kenya Club, Kenya, 28-29 November 2013. **Pg. 29-32**
20. John N. Nguu, B. O. Aduda, **F. W. Nyongesa** and R. J. Musembi., (2013). Morphological and Structural Characterization of TiO₂/Nb₂O₅ Composite Electrode thin films synthesized by Electrophoretic (EPD) Technique., 1ST Young Scientists' MSESSESA Conference on Material Science and solar Cell technology, United Kenya Club, Kenya, 28-29 November 2013. – **Pg. 70-77**
21. John N. Nguu, B. O. Aduda, **F. W. Nyongesa** and R. J. Musembi., (2013). Electrophoretic Deposition of TiO₂/Nb₂O₅ Composite Electrode Thin Films for Photovoltaic Application., *Solar Energy for World Peace, August 17-19, 2013, Isanbul, Turkey.* – Poster Presentation
22. **F. W. Nyongesa** W. G. Nyaga and B. O. Aduda., (2007). ELECROPHORETC DEPOSITION (EPD) OF MATERIALS AND ITS APPLICATIONS., *Poster presented at the 6TH EDWARD BOUCHET-ABDUS SALAM INSTITUTE INTERNATIONAL CONFERENCE, 23-26 Jan, 2007, iThemba LABS, Cape Town, South Africa.* – Poster Presentation
23. **Nyongesa F. W.** and Aduda B. O., (2001). Effect of Crystalline Phases on Strength of (Quartz-Kaolin-feldspar) Porcelain, *Proceedings of 5th Regional Workshop on Material Science and Device Technology, Sept. 2000, University of Nairobi, Kenya.,Pg. 51-56.*
24. **Nyongesa F. W.** and Aduda B.O., (1999). Effect of Silica and Sintering Temperature on Material Properties of Kenyan Industrial Clay Ceramics, *Proceedings of Regional Conference on Material Science, 15th –17th Sept. 1999, Makerere University, Kampala, Uganda, 96-110.*
25. **Nyongesa F. W.** and Aduda B.O., (1994). Ultrasonic Characterization of Kenyan Clay Refractories, *in proceedings of 1st African Regional Conference on the Ultrasonic Non-Destructive Testing, June, 1994, Nairobi, Kenya, 32-35.*

C: Books/Manuscript

1. Thermodynamics (2012):
3RD Year University Physics Course Text Book
COVERAGE: - Classical Laws of thermodynamic
READERSHIP: - University - B.Sc Physics, B.Ed (Science), Engineering
PUBLISHER: - University of Nairobi, ODeL Learning Module
2. Mechanical, Thermal and Optical Properties Of Materials: (2015)
COVERAGE: - Mechanical, Thermal and optical Properties of solids
READERSHIP: - Postgraduate in Physics and Engineering

PUBLISHER: - University of Nairobi, ODeL Learning Module

3. **Practical Physics I (2013 - 2020):**

1ST Year Physics Practical Laboratory manual

COVERAGE: - Mechanics, Properties of Matter, Optics, Electricity & Magnetism

READERSHIP: - Undergraduates taking B.Sc Physics, B.Ed (Science), Engineering

PUBLISHER: - University of Nairobi, ODeL Learning Module

4. **Practical Physics II (2012 - 2020):**

2ND Year Physics Practical Laboratory manual

COVERAGE: - Mechanics, Properties of Matter, Optics, Electricity & Magnetism

READERSHIP: - Undergraduates taking B.Sc Physics, B.Ed (Science), Engineering

PUBLISHER: - University of Nairobi, ODeL Learning Module

5. **Practical Physics III (2012 - 2020):**

2ND Year Physics Practical Laboratory manual

COVERAGE: - Mechanics, Properties of Matter, Optics, Electricity & Magnetism

READERSHIP: - Undergraduates taking B.Sc Physics, B.Ed (Science), Engineering

PUBLISHER: - University of Nairobi, ODeL Learning Module

D: Thesis

1. **Nyongesa F.W., (2000).** Influence of Sintering Temperature and Composition on Physio-mechanical Properties of Kenyan Triaxial Porcelain, *Ph. D Thesis, (University of Nairobi).*
2. **Nyongesa F.W., (1994).** Ultrasonic Characterization of Kenyan Clay Refractories, *M.Sc. Thesis, University of Nairobi.*

10. ACADEMIC CONFERENCES/WORKSHOPS ATTENDED

1. Grant writing workshop for PASET African Host Universities (AHUs) and Partners at the International centre of Insect Physiology and ecology (ICIPE), Nairobi, Kenya. 20 – 24th January, **2020**.
2. Seventh Tokyo International Conference on Africa's Development (TICAD7) under the theme "Africa and Yokohama, sharing passion for the Future", Yokohama, Japan. 25 Aug -4 Sept **2019**.
3. 2nd Africa-Japan Higher Education Workshop at the World Bank office in Tokyo, Japan. 31 Aug – 4 Sept **2019**. – Presentation on "research in energy including renewable in Kenya" and panel discussant on "Social issues in Africa (focus on Kenya) within the SDGs and how the African – Japanese partnership could help in dealing with these social issues.
4. Material Science and Solar Energy Network for Eastern and Southern Africa (MSSEESA): - Postgraduate Students Seminar, University of Nairobi, Kenya. October 16 -17, **2019**.
5. Joint Material Science and Solar Energy Network for Eastern and Southern Africa (MSSEESA) and DAAD International Conference on Material Science Research for Sustainable Energy in Africa, September 26 -27, **2018**, University of Nairobi, Kenya

6. African Research Universities Alliance (ARUA) - Centre of Excellence (CoE) Workshop on Energy Funding Proposal, Stellenbosch University, South Africa, 20-24 August, **2018**
7. 2ND Career/Mentorship workshop for 2ND year Physics students at University of Nairobi, April 4th, **2019**, CBPS, UoN.
8. 8TH INTERNATIONAL CONFERENCE OF THE AFRICA MATERIALS RESEARCH SOCIETY (A-MRS): December **6-11, 2015**, Accra, Ghana. – Presented a Paper
9. 7TH INTERNATIONAL CONFERENCE OF THE AFRICA MATERIALS RESEARCH SOCIETY (A-MRS): December **8-13, 2013**, Addis Ababa, ETHIOPIA – Presented a Paper.
10. 1ST Joint US-Africa Materials Science Institute (JUAMI) on Materials for Sustainable Energy, December 9 - 21, **2012**, Addis Ababa, ETHIOPIA.
11. 1ST Young Scientists' MSSESA Conference on Material Science and solar Cell technology, United Kenya Club, Kenya, 28-29 November **2013**.
12. Founding National Young Academies and The Global Young Scientists Academy (GYSA), 14-16 February **2010**, Berlin, Germany.
13. 1ST IAP CONFERENCE FOR YOUNG LEADERS IN STI held in conjunction with “*The World Economic Forum’s Annual Meeting of the New Champions*”, September 25-28, **2008**, Tianjin, China.
14. WAYS-RAO CONFERENCE, 21-22 March, **2007**, Pretoria, South Africa.
15. 6TH Edward Bouchet Abdus Salam Institute International (EBASI) Conference on Physics and Technology for sustainable Development in Africa, Jan 23- 26, **2007**, iThemba Labs, Cape Town, South Africa.
16. Workshop on Metrological control, checking the net content in prepackages and identifying counterfeit goods for weight and measures officers, 16th- 20th June **2003**, *Department of Weights and Measures of the Ministry of Trade and Industry*, Nairobi Kenya. - ***Invited speaker***
17. Fifth Regional Workshop on Material Science and Device Technology, 18th – 20th Sept. **2000**, University of Nairobi, Kenya. -***Presented a paper.***
18. Germany Academic Exchange Service (DAAD) seminar for Scholarship/Fellowship holders in Public Universities in Kenya, 19th – 21st Jan, **2000**. University of Nairobi, Nairobi, Kenya. - ***Presented a paper***
19. Regional Conference on Material Science, Sept. **1999**, Makerere University, Kampala, Uganda- ***Presented a paper.***

11. MANAGEMENT & ADMINISTRATIVE CONFERENCES, WORKSHOPS AND SEMINARS

20. 4th KEMI Conference on Education Management, KENYA EDUCATION MANAGEMENT INSTITUTE (KEMI), June 17- 18, 2014., Re-Energizing Education Performance in Science & Mathematics: strategies For Enhancing Performance in Science & Mathematics. – *Presented a Paper*.
21. E-Content Development Training Workshop For Science Lecturers, March 2005, Naivasha, Kenya.
22. Reviewers Workshop for B.Ed (Science) Distance study material production, January 2005, Nyeri, Kenya.
23. Writers Workshop for B.Ed (Science) Distance study material production, December 2004, Nyeri, Kenya.
24. Writers Workshop for B.Ed (distance) Science study material production, August 2003, Matuu, Kenya.
25. Writers Workshop for B.Ed Science study material production, June 2003, Machakos, Kenya.
26. Writers Workshop for B.Ed (distance) Science study material production, June 2003, Machakos, Kenya.

12 CONSULTANCY & COMMUNITY WORK

- Peer curriculum reviewer for B.Sc., M.Sc., and Ph.D Physics Programs for Kabianga University, Tea Research Institute., Kericho, June 8-12., 2015.
- Peer review of B.Sc. in Applied Physics and computer science program for South Eastern University College (SEUCO) – April 2011.
- Mentorship program for STEM to high schools and University female students to enhance female enrollment in STEM.

13 OTHER LANGUAGES

- Knowledge of French
- Kiswahili
- Luhya

REFEREES

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