

## Employers Contacts

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## Personal Contacts

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**Thomas W Sakwa, D.Phil., MSc., BSc., (MU), MKIM, MKNAS, MPSK**  
**Professor of Condensed Matter Physics**

## 1. KEY COMPETENCIES

- University Professor, manager, trainer and researcher
- Good organizational, interpersonal and communication skills
- Capacity to work under unique situations and deliver within timelines
- Firm, fair, accountable and transparent
- Exhibited transformative leadership skills
- Capacity to embrace and promote national values and principles of governance
- A Pre-qualified Peer Reviewer/ Resource Person for CUE.
- Self –motivated, visionary and result oriented
- Advanced Computer skills

## 2. CURRENT POSITION

Professor of Condensed Matter Physics and Coordinator / Director, Webuye Campus, Masinde Muliro University of Science and Technology, Kakamega, Kenya.

## 3. PERSONAL DATA

SURNAME: Sakwa  
FULL NAMES: Thomas Sakwa  
ID. NUMBER: 9684187  
SEX: Male  
DATE OF BIRTH: 28<sup>th</sup> August 1969  
PLACE OF BIRTH: Mwangaza Village, Nabing'eng'e Sub-Location, Milima Location, Central Division, Bungoma Borth Sub-County, Bungoma County, Kenya.  
NATIONALITY: Kenyan  
MARITAL STATUS: Married (with three daughters and one son)  
OCCUPATION: University lecturer (*University Don*)  
LANGUAGE OF COMMUNICATION: English, Kiswahili

## 4. PERSONAL PROFILE

Diligent, Good Listener, Focused, Responsible, Organized, Team Player.

**5. PERSONAL VISION , MISION, PHILOSOPHY AND AMBITION**

**Vision:** To embrace quality scholarship and education for societal development.

**Mission:** To actively participate in training and production of versatile, innovative and competent Scientists & Educators who are able to address and cope up with emerging societal issues in physics and related fields. To further participate with enthusiasm in generating and disseminating knowledge in the entire spectrum of physics.

**Philosophy:** Scientific knowledge is vital for development

**Ambition:** To become an accomplished scientist

**Core Values:** Integrity, professionalism, teamwork, collegiality, accountability

**6. EDUCATIONAL BACKGROUND**

S.No.	Period	Institution	Certificate	Grade/Rank
1.0	1997 - 2003	Moi University	D.Phil. (Physics)	N/A
2.0	1994 - 1997	Moi University	M.Phil. (Physics)	N/A
3.0	1990 - 1993	Moi University	BSc.	First Class Honours( 72%)
4.0	1988 - 1989	Kibabii High School	K.A.C.E	12 Points: 2 Principles, 2 Subsidiaries
5.0	1984 - 1987	Kaiboi Technical School	K.C.E	16 points; Second Division
6.0	1976 - 1983	Nabing'eng'e Primary School	C.P.E	31Points

**7. RESPONSIBILITIES***i) Masinde Muliro University of Science and Technology (MMUST)*

- **Coordinator/ Director** , MMUST – Webuye Campus, (February 2016 – to date)
- **Supervisor**, Webuye and Bungoma Campuses re-establishment ( August 2015- January 2016)
- **Acting as Vice Chancellor**, MMUST (30<sup>th</sup> May to 1<sup>st</sup> June, 2013)
- **Acting as Vice Chancellor**, MMUST (25<sup>th</sup> to 31<sup>st</sup> January, 2009)
- **Acting as Deputy - Vice Chancellor**, MMUST (1<sup>st</sup> May to 7<sup>th</sup> May 2010)
- **Founding Dean**, Faculty of Science (August 2008 – August 7, 2014)
- **Functional Dean ( Coordinator)**, School of Health Sciences ( 2010 - August 2012)
- **Functional Dean ( Coordinator)**, School of Nursing and Midwifery( 2011 - August 2012)
- **Functional Dean ( Coordinator)**, School of Agriculture, Veterinary Sciences and Technology Health Sciences ( 2010 – August 2011)
- **Member**, Committees of Senate (January 2007 –To Date)
- **Departmental Graduate Studies Committee** ( 2004 - To Date)

*ii) Masinde Muliro University of Science and Technology (MMUST)*

- **Chairman of Department**, Physical Sciences (January 2007 – August 2008)

*ii) Western University College of Science and Technology (WUCST)*

- **Chairman of Department**, Physical Sciences (January 2006 – December 2006)
- **Faculty Representative** to the **Academic Board** (2003 - 2005).
- Student **academic advisor**, Physics (Since 2003).

*iii) Moi University*

- **Member** of the departmental Post-Graduate Studies Committee (2001-2003).

- **Member** of the departmental Curriculum Review Committee (2001-2003).
- **Secretary** to the departmental Faculty ( 2001-2003)
- Student **academic advisor**, Physics (Since 2003).

**NOTE:**

- ❖ *15 years of service in University management (2003-2018).*
- ❖ *6 years of service as an academic Dean of the Faculty of Science, MMUST (2008-2014).*
- ❖ *Section 7 (i) above is a record of a successful transformative leadership skills ( successful management change)*

**8. CONSULTANCY**

- Commission for University Education (CUE) : Active Peer – reviewer ( 2014 - to Date)
- External Examiner, Jaramogi Oginga Odinga University of Science and Technology ( 2014 - 2018)
- External Examiner, University of Karatina ( 2011 - 2016)
- External Examiner, Kabarak University ( 2014 - to Date)

**9. PROFESSIONAL APPOINTMENTS**

S. No.	Period	Employer	Designation
1.0	February 2016 – 2019	MMUST	Webuye Campus Coordinator / Campus Director
2.0	December 10, 2014 - up to Date	MMUST	Professor of Physics
3.0	October 2014 to June 2015	University of Kabianga	Visiting Professor of Physics on Sabbatical Appointment
4.0	June 2009- December 9, 2014	MMUST	Ass. Professor of Physics
5.0	January 2007 –June 2009	MMUST	Senior Lecturer
6.0	November 2005 - December 2006	WUCST	Senior Lecturer
7.0	October 2003 – November 2005	WUCST	Lecturer
8.0	February 2002 – October 2003	Moi University.	Lecturer
9.0	November 1994 – February 2002	Moi University.	Graduate assistant
10.0	August 1994 – November 1994	Pan Paper High School	Teacher

**NOTE:**

- *Served for 24 years as a University academic staff with 13 years of academic experience at the level of Senior Lecturer and above.*
- *16 years of academic experience at senior position at university.*

**10. SABBATICAL APPOINTMENTS/ VISITING PROFESSOR**

- National Institute of Solar Energy (NISE), Gurugram, India (1/8/2017 and 21/8/2017)**  
Upon the nomination and recommendation of the Kenya National Chamber of Commerce and Industry (KNCCI), the Government of India invited me for a short Course training on Renewable Energy under the Third Indian Africa Forum Summit (IAFS III). Visited various Industries, Institutions and firms.
- University of Kabianga (October 2014 to June 2015)**  
Appointment on Sabbatical as a visiting Professor in the School of Science and Technology, (Department of Physical Sciences). Sabbatical leave served to promote professional

development by providing opportunities for reflection, research, innovation in teaching, and professional exploration

**(iii) Helsinki Metropolia University of Applied Sciences, Finland ( April 2014)**

Was a visiting Professor on NoSoSo – Teacher Exchange Programme that sponsored by CIMO, an independent agency within the Finnish Foreign Affairs Ministry. I gave lectures, attended Seminars and participated in collaborative meetings. The visit served to promote professional development by providing opportunities for reflections and exchange of ideas in research and innovative teaching. It essentially enhanced my career as a scholar and I was able to benchmark with a view to augment quality and quality assurance. The teaching facilities were impressive and the focus was on innovation or hands on activities.

## 11. THESIS

1. **M.Phil Thesis:** Temperature Dependence of the Condensate Fraction of a Degenerate Bose-Einstein System, Occupation of the Z-M-S and Adsorption of Liquid Helium (1997).
2. **D.Phil. Thesis:** Liquid Helium ( $^4\text{He}$ ), Disordered Bosons, Spatial Ordering and Temporal Variations of the Condensate Fraction (2003)

## 12. THESES EXAMINED

1. **D.Phil. / PhD.** : Three (4)
2. **MPhil / MSc.** : Sixteen (19)

## 13. THESES SUPERVISED

1. **D.Phil. / PhD.** : Five (5) completed, Zero(0) submitted for examination, One (1) intend to Submit, Five (5) ongoing

S/No.	Name of Student	Year of Graduation	Degree/ institution
1.0	Prof. K Y Ayodo	2008	D.Phil, Moi Univ
2.0	Dr Henry Barasa	2015	PhD, MMUST
3.0	Dr Jared Oloo Odhiambo	2016	PhD. MMUST
4.0	Heroce Kibe	Awaiting graduation, 2018	PhD. MMUST
5.0	Michael Nakitare	Awaiting graduation, 2018	PhD. MMUST
6.0	Mr Prichani Simiyu	Submitted, 2017	PhD, MMUST
7.0	Mr Aggrey Mukoya	Intend to Submit	PhD, MMUST
8.0	Mr William Kirui	On going	PhD, MMUST
9.0	Nahason Matoke	Ongoing	PhD. MMUST
10.0	Kitui Manasse	Ongoing	PhD. MMUST
11.0	Musungu Mulira	Ongoing	PhD. MMUST
12.0	Antonate Sarai	Ongoing	PhD. KIBU

2. **M.Phil / MSc.** : seventeen (17) Graduated, Three (3) Submitted Thesis for Examination, Three (3) intend to Submit, Five (5) ongoing.

S/No.	Name of Student	Year of Graduation	Degree / Institution
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1.0	Mr B W Rapando	2011	MSc MMUST
2.0	Mr Prichani Simiyu	2011	MSc MMUST
3.0	Mr Angatia Hesbon	2011	MEd MMUST
4.0	Ms Antonate Serai	2012	MSc MMUST
5.0	Mr P O Saisi	2012	MSc MMUST
6.0	Everlyne Shitiavai	2013	MEd MMUST
7.0	Ms Elica Wabululu	2013	MSc MMUST
8.0	Ms Jophin Namwitako	2013	MSc MMUST
9.0	Mr Horace Kibe	2015	MSc MMUST
10.0	Mr Ndombi Mark	2015	MSc MMUST
11.0	Ocholla Alphayo Abacha	2015	MEd MMUST
12.0	Ms Josephine Atieno	2016	MSc MMUST
13.0	Lusamamba Simon Mwatulo	2017	MSc. KIBUCO
14.0	Mr Acab Lisamula	2017	MSc MMUST
15.0	James Sifuna	2017	MSc MMUST
16.0	Mr Otimo Solomon	Awaiting graduation, 2018	MSc MMUST
17.0	Mr Wabwire Maindi	Awaiting graduation, 2018	MSc MMUST
18.0	Mr Ingosi A	Submitted, 2018	MSc MMUST
19.0	Mr Dickson Kangu	Intend to Submit	MSc MMUST
20.0	Mr Alex Miheso	Intend to Submit	MSc MMUST
21.0	Vincent Oketch	Intend to Submit	MSc. KIBUCO
22.0	Ms Eunice Otieno	Ongoing	MSc MMUST
23.0	Mr Makokha David	Ongoing	MSc MMUST
24.0	Mrs Anne Wakhungu	Ongoing	MSc MMUST
25.0	Mr Godfred A Osukuku	Deferred studies	MSc MMUST
26.0	Job Wekesa	Ongoing	MSc. MMUST

#### 14. EXTERNAL EXAMINER ( PHYSICS)

1. Kabarak University : 2006 – To Date
2. Karatina University: 2011 – 2016
3. Jaramogi Oginga Odinga University of Science and Technology : 2014 - 2018

#### 15. CURRENT RESEARCH INTERESTS

- (i) High Temperature Superconductivity
- (ii) Statistical Thermodynamics of Binary systems
- (iii) Spatial Motions of Multi-Pendula System
- (iv) Optical properties of Titanium Dioxide based Multilayer thin films

#### 16. PUBLICATIONS

1. Ackab L. M, Amadalo M. M, **Thomas W. S**, and Pepela M. M (2017). **Students and Teachers Perception of Physics Practical work in Secondary Schools in Kakamega East Sub-County, Kenya.** *International Journal of Innovative research and Development.* ISSN 2278-0211 (online), doi :10.24940/ijrd/2017/v6/i9/AUG17051. Vol 6, Issue 9, PP 260

2. Celline Awino, Victor Odari and **Thomas Sakwa (2017)**. Investigation of Structural and Electronic Properties of  $\text{CH}_3\text{NH}_3\text{PbI}_3$  Stabilized by Varying Concentrations of Poly(Methyl Methacrylate) (PMMA). *Coatings*. 7, 115; doi:10.3390/coatings7080115
3. Heroce E Kibe, **Thomas Welikhe Sakwa** and KM Khanna (2017). Thermodynamics of S-Wave Pairing in Uranium and Cerium Based Heavy Fermion Compounds. *Journal of Multidisciplinary Engineering Science and Technology (JMEST)* ISSN: 2458-9403 Vol. 4 Issue 8, August - 2017 [www.jmest.org](http://www.jmest.org) JMESTN42352132 7020.
4. J.S. Prichani, **T.W. Sakwa**, N.O. Ongati, (2017). Functions of Multi-Pendula System in Spatial Motion. *The SIJ Transactions on Computer Science Engineering & its Applications (CSEA)*. Print ISSN: 2321-2373 | Online ISSN: 2319-7064. DOI: 10.21275/ART2017796. [www.ijsr.net](http://www.ijsr.net). Volume6, Issue 7, July 2017.
5. J.S. Prichani, N.O. Ongati, **T.W. Sakwa**, (2017). Spatial Motion of Multi- Pendula System. *The SIJ Transactions on Computer Science Engineering & its Applications (CSEA)*. Print ISSN: 2321-2373 | Online ISSN: 2321-2381 <http://www.The.SIJ.XXXXXXXXXX> (Accepted for Publication).
6. Michael Nakitare Waswa, Yudah K. Ayodo, **Thomas Sakwa** and Boniface Otieno Ndinya (2017). Doped Mott Insulators within the Strong Coupling Regime. *International Journal of recent Engineering Research and development (IJRERD)*, ISSN : 2455-8761. [www.ijrer.com](http://www.ijrer.com). Vol.2, Issue 7, PP 102-108.
7. Michael Nakitare Waswa, Yudah Kennedy Ayodo, **Thomas Welikhe Sakwa** and Boniface Ndinya (2017). Specific Heat Of Doped High-TC Cuprate Superconductors Within The Bose-Fermi Hubbard Model. *Journal of Multidisciplinary Engineering Science and Technology (JMEST)* ISSN: 2458-9403 Vol. 4 Issue 4, [www.jmest.org](http://www.jmest.org). Pp 6663-6668
8. James Sifuna, George S. Manyali, **Thomas W. Sakwa**, Manasse M. Kitui (2017). Structural and Mechanical Properties of Bulk Scandium Trifluoride Investigated by First-Principles Calculations. *Journal of Multi-disciplinary Engineering science and Technology ( JMEST(JMEST)* ISSN: 2458-9403 Vol. 4 Issue 2, [www.jmest.org](http://www.jmest.org) JMESTN42352132 7020. Pp 7020 -7025
9. Otimo Solomon, **Thomas Sakwa**, Ayodo Yuda Kennedy, James Sifuna (2017). Quantum Phase Transition: Intra and Inter-Band Interaction on D-Wave Superconductivity. *World Journal of Applied Physics*. <http://www.sciencepublishinggroup.com/j/wjap> doi: 10.11648/j.wjap.20160103.16. Vol 1, No 3 Pp 67-82.
10. JO Odhiambo, **TW Sakwa**, YK Ayodo, BW Rapando (2016). Thermodynamic Properties of Mercury based Cuprate Due to Cooper Pair-electron interaction. *Journal of Multidisciplinary Engineering Science and Technology (JMEST)*. ISSN 2458-9403. Vol 3 Issue 7. pp5241-5248.
11. Henry Wafula, Albert Juma, **Thomas Sakwa**, Robinson Musembi, Justus Simiyu (2016). A Surface Photovoltage Study of Surface Defects on Co-doped  $\text{TiO}_2$  thin Films Deposited by Spray Pyrolysis. *Coatings*. [www.mdpi.com/journal/coatings](http://www.mdpi.com/journal/coatings). Doi : 103390/coatings6030030. Vol 6, No. 30, PP 1-9.
12. JO Odhiambo, **TW Sakwa**, BW Rapando, YK Ayodo (2016). Effect of  $\text{CuO}_2$  Plane on the Thermodynamic Properties of Double Ti-O Layered Cuprate based on an interaction Between Cooper Pair and an electron. . *International Journal of Physics and Mathematical Sciences* ISSN: 2277-2111. Online at <http://www.cibtech.org/jpms.htm> Vol. 6(2)April June pp69-77
13. James Sifuna, George simiyu Manyali, **Thomas Sakwa** and Alima Mukasia (2016). Computer Modeling for Science, Technology, Engineering and mathematics curriculum in Kenya: A

- Simulation based Approach to Science Education.** *Science Journal of education.* ISSN: 2329-0897. Online at <http://www.sciencepublishinggroup.com/j/sjedu> Vol. 4(1) pp 1-8
14. Lusamamba S M, **Sakwa T W**, Odhiambo O J, Oketch V O and Ochola A A (2015). **Internal energy of Grand canonical Ensemble of a mixture of Helium Isotopes with Duo-Spin degeneracy.** *International Journal of Physics and Mathematical Sciences* ISSN: 2277-2111. Online at <http://www.cibtech.org/jpms.htm> Vol. 5(4)October -December pp 7-15
  15. Rapando BW, Khanna KM, Tonui JK, **Sakwa TW**, Muguro KM, Kibe H, Ayodo YK and Sarai A (2015). **The Dipole Mediated t-J model for High Tc Superconductivity.** *International Journal of Physics and Mathematical Sciences* ISSN: 2277-2111. Online at <http://www.cibtech.org/jpms.htm> Vol. 5(3)July September p p 36-37
  16. Mukoya A. K, **Sakwa T W**, Khanna K M, Ayodo Y K, Sarai A, Rapando B W and Namwitako J. (2015). **Critical Temperature and Condensate Fraction of a Bose – Einstein Condensate Trapped in a Finite Volume.** *International Journal of Physics and Mathematical Sciences* ISSN: 2277-211. Online at <http://www.cibtech.org/jpms.htm> Vol. 5(3)July September p p 1-6.
  17. Khanna K.M, Namwitako J, **Sakwa T.W**, Ayodo Y.K, Sarai A, Barasa G.O and Prichani S.J. (2015). **Thermodynamics of Incommensurate Quantum Crystal.** *International Journal of Physics and Mathematical Sciences* ISSN: 2277-2111. Online at <http://www.cibtech.org/jpms.htm> Vol. 5(2)April-June p p34-39.
  18. Kibe H.E , **Sakwa T.W**, Ayodo Y.K, Rapando B.W, Khanna K.M and A Sarai (2015). **Thermodynamic Properties of Heavy Fermion Superconductors.** *International Journal of Physics and Mathematical Sciences* ISSN: 2277-2111. Online at <http://www.cibtech.org/jpms.htm> Vol. 5(2)April-June p p23-33.
  19. Henry Wafula, Musembi Robinson, Albert Juma, **Thomas Sakwa**, Manasse Kitui, Rodrigo Araoz and Christian H Fischer (2015) **Role of Cl on Diffusion of Cu in In2S3Layers prepared by Ion Layer Gas reaction method.** *Coatings* 5 No. 1, 54-62, EISSN 2079-6412.
  20. Wabwoba F, **Sakwa T**, Mbugua S, Kilwake H. J. (2014). Environmental implications of cell phones penetration and disposal in Kenya. *International Journal of Computers & Technology.* 13(7):4647-4652 ISSN 2277-3061.
  21. Rapando B.W, Ayodo Y.K, **Sakwa T.W**, Khanna K.M, Mukoya A K & A Sarai. **Transition Temperature of Superconducting Hybridized Cuprate Systems** *International Journal of Physics and Mathematical Sciences* ISSN: 2277-2111. Online at <http://www.cibtech.org/jpms.htm> 2013 Vol. 3(2)April-June p p104-109.
  22. **Sakwa T.W**, AyodoY.K, Sarai A, Khanna K.M, Rapando B.W & Mukoya A.K. **Thermodynamics of Grand-Canonical Binary Systems at Low Temperatures.** *International Journal of Physics and Mathematical Sciences* ISSN: 2277-2111. Online at <http://www.cibtech.org/jpms.htm> 2013 Vol. 3(2)April-June p p87-98.
  23. **Sakwa W T**, Ayodo Y K, Saisi P O, Sarai A, Rapando W & Omondi C A. **A Non-degenerate Binary System of Helium Isotopes.** *East African Journal of engineering, Science and Technology (EAJEST).* Vol.1 No.2 April 2013 ISSN-2219-8598 pp 66-7. Omondi C A, **Sakwa W T** & Ayodo Y K. **Bilayer Metal Oxide Thin Films for UV – Visible Light Sensing.** *East African Journal of engineering, Science and Technology (EAJEST).* Vol.1 No.2 April 2013 ISSN-2219-8598 pp 75-81.
  24. C A Omondi, **T W Sakwa**, Y K Ayodo and K M Khanna. **Synthesis and Characterization of ZnO Nano-Particles.** *International Journal of Physics and Mathematical Sciences* ISSN: 2277-2111. Online at <http://www.cibtech.org/jpms.htm> 2012 Vol. 2(2)April-June pp159-168.
  25. **TW Sakwa**, JS Prichan, YK Ayodo, A Sarai and HB Wafula. **Energy Equations for n – tuple Pendula System.** *International Journal of Physics and Mathematical Sciences* ISSN: 2277-2111. Online at <http://www.cibtech.org/jpms.htm> 2012 Vol. 2(2)April-June pp154-158

26. JS Prichan, **TW Sakwa**, YK Ayodo and A Sarai. **Equations of Motion for Multiple – Pendula System.** *International Journal of Physics and Mathematical Sciences* ISSN: 2277-2111. Online at <http://www.cibtech.org/jpms.htm> 2012 Vol. 2(2)April-June pp137-140
27. Ayodo Y.K, **Sakwa W.T**, Rapando B.N & Khanna K.M. **Prospects and Challenges of High – Temperature Superconductors (HTS).** *Journal of Science, Technology, Education & Management (J-STEM)*, Vol.4Nos 1 & 2, September 2011, ISSN 1991-2889, pp 31-41
28. Y. K. Ayodo, K.M. Khanna, **Sakwa W.T.** **Thermo-dynamical Variations and Stability of a Binary Bose-Fermi System,** *Indian Journal of Pure & Applied Physics*, Vol. 48, December 2010, pp.886-892
29. Khanna K.M, Ayodo Y.K, **Sakwa W.T.** **A Hard-Sphere Assembly of Crystalline Bosons,** *African Physical Review* 4: 0001, (2010), 1-7
30. Khanna K.M, Ayodo Y.K, Ekai R, **Sakwa W.T.** **Elastic Scattering of He-4 atoms at the Surface of Liquid Helium,** *Indian Journal of Pure and Applied Physics*, Vol.48, October 2010, pp. 743-748
31. Y K Ayodo, K M Khanna, **T W Sakwa**, S K Rotich, P K Torongey, & W S Mbugua. **Pair Distribution Function For Interacting Bosons and the Ground State Energy of Solid Helium-4.** *Indian Journal of Pure and Applied Physics.* Vol 47, May 2009, pp 325-331
32. K M Khanna, **T W Sakwa**, L S Chelimo, K Y Ayodo, **Solid <sup>4</sup>He Under Very High Pressure.** *Indian Journal of Pure and Applied Physics.* Vol 46, December 2008 pp 857-861.
33. H. B. Wafula, **T.W Sakwa.** **Optical and I-V Characteristics of Pressed Nitrogen Doped TiO<sub>2</sub>Photoelectrodes for Dye-Sensitized Solar Cells.** *East African Journal of Pure and Applied Sciences (EAJPAS)*, Vol 1, No. 1 pp 97-100. ISSN 2070-090, 2008.
34. S. Omuterema, M.P. Tole, C. Ndiema, **T.W Sakwa** & B. Imbuga, **Study of Energy Potential of Municipal Solid Waste (MSW) Generated from Eldoret Municipality.** *East African Journal of Pure and Applied Sciences(EAJPAS)*, Vol 1, No. 1 pp 82-84. ISSN 2070-0903, 2008 )
35. K.M. Khanna , S.Kirui, **T.W. Sakwa**, K.Y. Ayodo, **Specific Heat Jump in Anisotropy YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub>- Superconductivity.** *Indian Journal of Pure and Applied Physics*, Vol.45, November 2007 760-762
36. K.M. Khanna , S.Kirui, **TW Sakwa**, K.Y. Ayodo, **Correlation Amplitude for Quasi-particle in High-Tc Superconductivity.** *Indian Journal of Pure and Applied Physics*, Vol.42, October 2004, pp 758-763.
37. K.Y. Ayodo, K.M. Khanna &**T.W. Sakwa**, **Micro-canonical ensemble of particles obeying Bose-Einstein & Fermi Dirac Statistics.** *Indian Journal of Pure and Applied Physics*, Vol.42, October 2004, pp 749 -757.
38. **TW Sakwa**, KM Khanna, M Mueni, S Rotich & PK Torogey, **Four Level Approximation in Disordered Medium.** *Indian Journal of Pure and Applied Physics.* Vol.42, May 2004, pp 355-360.
39. **TW Sakwa**, KM Khanna, M Mueni, S Rotich & PK Torogey, **Transition Temperature for the <sup>4</sup>He Liquid Adsorbed in Disordered Media.***Indian Journal of Pure and Applied Physics*, Vol.42, May 2004, pp 351-354.
40. K.M. Khanna &**T.W. Sakwa**, **Temporal Variations of the Condensate Fraction of Bosons.** *Indian Journal of Pure and Applied Physics*, Vol. 38, December 2000, pp 801-802.
41. **T.W. Sakwa** & K.M. Khanna, **Occupation of Zero Momentum State, Condensate Fraction and Adsorption of Liquid Helium.** *Indian Journal of Pure and Applied Physics*, Vol. 38, October 2000, pp 697 – 701.
42. K.M. Khanna &**T.W. Sakwa**, **Helium (<sup>4</sup>He) in the Aerogel and Vycor Glass.** *Indian Journal of Pure and Applied Physics*, Vol. 38, July 2000, pp 530-532.



43. *K.M. Khanna & T.W. Sakwa, Liquid Helium, Adsorption of Helium, Disordered Bosons, Condensate and Spatial Ordering.* Indian Journal of Pure and Applied Physics, Vol. 37, July 1999, pp 529-540.

#### 17. UPCOMING PUBLICATIONS

1. *Ayodo Y.K, Sakwa W.T, Khanna K.M, Rapando B.W, Sarai A & Omondi C. Specific Heat Capacity of a Degenerate Ideal Bose Gas in 1-DIM Anharmonic Potential Trap (Accepted for review for Publication in the International Journal of Physics and Mathematical Science)*
2. *Khanna K.M, Sakwa T.W, Wabululu E, A.Sarai, Rapando B.W & Prichani S J. Thermodynamic Properties and Pairing Correlations in Heavy Nuclei. (Accepted for review for Publication in the International Journal of Physics and Mathematical Science.*
3. *Barasa GO, Reddy MVR, Sakwa TW, Barasa H, Rapando BW and Omondi CA. Synthesis And Characterization of Pure ZnO, CdO AND CdO Coated Zno Core/Shell Nanoparticles by Sol-Gel Method. (Accepted for review for Publication in the Coatings).*

#### 18. DRAFT MANUSCRIPTS

1. *Ayodo Y.K, Sakwa WT, Khanna K.M, Rapando B.W, Sarai A & Omondi C . Commutation Relations for a Mixture of Bosons and Fermions.(Draft)*
2. *Rapando B.W, Sakwa TW, Ayodo Y.K, Khanna K.M & A Sarai. Effects of Inter-Atomic Distance on Critical Temperature of Cuprates. (Draft)*
3. *Y K Ayodo, TW Sakwa & K.M. Khanna . Transition Temperature Continuity in the specific heat of a Bose-Fermi System. (Draft)*
4. *T.W. Sakwa, K.M. Khanna, A Mukoya and Namwetako JS. Statistical Thermodynamics of a Mixture of Two Sets of Bosonic Particles with Different Integral Spins. (Draft)*
5. *W Kibande, Y K Ayodo, TW Sakwa & K.M. Khanna. Chemical Potential for a Mixture of Fermions and Bosons (Draft)*

#### 19. MAIN ACHIEVEMENTS AND CONTRIBUTIONS TO THE WORLD OF ACADEMIA

- Immense research output
- Elica Wabululu, K.M Kkanna and T.W. Sakwa. Thermodynamic properties and correlation of nuclear – pairing book. *ISSBN 978-3-659-43483-9.*
- Fundamentals of Physics (Laboratory Guide). *ISSBN 978-9966-21-011-1.* Ayodo YK, Sakwa WT and Rapando BW
- Fundamentals of Physics Book (Draft) Sakwa WT.
- Classical Mechanics Teaching Module (Draft). Sakwa WT
- Thermodynamics Book (Draft). Sakwa WT
- Written two Laboratory manuals ( Drafts) in the following courses
  - (a) Vibrations and Waves ( currently in use – PHY 211 )
  - (b) Modern Physics ( Currently in use – PHY 212)

#### 20. CONFERENCES/ WORSHOPS/ SEMINARS ATTENDED

- First Pan-African International Research Congress held at Grand Swiss Hotel- Kisumu between 18<sup>th</sup> and 21<sup>st</sup> June 2018.

- Facilitated a *University of Kabianga Curriculum Review and Development Stakeholders' workshop* held between 9<sup>th</sup> and 12<sup>th</sup> February 2016 at Tea Research Institute to meet the CUE requirements on relevance of programmes and Quality assurance.
- The *Commission for University Education External Peer Reviewers Induction Workshop* held between 17<sup>th</sup> and 18<sup>th</sup> of November 2015 at Egerton University Agricultural Training Centre. A Pre-qualified Peer Reviewer for CUE.
- Organized and facilitated a *University of Kabianga curriculum development, review and implementation workshop* held between 8<sup>th</sup> and 12<sup>th</sup> June 2015 at Tea Research Institute to meet the CUE requirements on relevance of programmes and Quality assurance.
- Organized and facilitated a Faculty – wide Stakeholders' workshop as part of the review process of ALL the Programmes in the Faculty (58 in Number) to meet the CUE requirements on relevance of programmes and Quality assurance. This was held on 24<sup>th</sup> January 2014 at MCU, MMUST in Kakamega, Kenya.
- The DIES National Multiplication Training (NMT) in Higher Education Management 2013-2014, titled '*National Multiplication Training on Curriculum Development and Review for Newly Chartered Public Universities in Kenya: implementation and Accreditation Part 2*' held between 4<sup>th</sup> and 6<sup>th</sup> June 2014 at Nakuru. **Topics covered includes:** Hands on Development and review of academic Programmes; Volume 2 of *The Road Map to Quality: A Handbook for Quality assurance in Higher education*; In depth coverage of Part IV of the *University Regulations 2014*; In-depth coverage of the *Third Schedule of the University standards and Guidelines 2014* and *Programme Accreditation: The German Experience*.
- A visiting Professor at Helsinki Metropolia University of Applied Sciences between 20<sup>th</sup> and 27<sup>th</sup> April 2014 on *NoSoSo – Teacher Exchange Programme* sponsored by CIMO, an independent agency within the Finnish Foreign Affairs Ministry. The visit served to promote professional development, with a view to augment quality and quality assurance in teaching and research.
- Organized and facilitated a University – wide workshop for ALL academic staff at Masinde Muliro University of Science and Technology as part of the The DIES National Multiplication Training (NMT) in Higher Education Management 2013-2014, titled '*National Multiplication Training on Curriculum Development and Review for Newly Chartered Public Universities in Kenya: implementation and Accreditation*' held between 23<sup>rd</sup> and 24<sup>th</sup> January 2014 at MCU, MMUST in Kakamega, Kenya. **Topics covered includes:** *Quality assurance in Higher education, Programme Accreditation Standards and Guidelines by the Commission for University Education and the Kenyan Experience in programme Development and Review*.
- The 100th 5-Day **Corporate Governance Training** for Board Chairmen, Directors, Boards of Governors, Commissioners, CEOs, Senior Managers and all cadres of top leaders held between December 16-20, 2013 at Sarova White Sands Beach Resort & Spa, Mombasa, Kenya. **It covers the following:** *Principles and Practices, legal environment, ethical leadership and integrity, strategic thinking, reporting, disclosure and accountability, risk mitigation, responsible business and service provision*.
- The DIES National Multiplication Training (NMT) in Higher Education Management 2013-2014, titled '*National Multiplication Training on Curriculum Development and Review for Newly Chartered Public Universities in Kenya: implementation and Accreditation*' held between 2<sup>nd</sup> and 4<sup>th</sup> December 2013 at Nakuru. **Topics covered includes:** *Quality assurance in Higher education, Programme Accreditation Standards and Guidelines by the Commission for University Education and the Germany Experience in programme Development and Review*.
- International conference on Action research for Sustainable Development held at Masinde Muliro University of Science and Technology between 28<sup>th</sup> and 30<sup>th</sup> June 2012

- University –wide workshop on the *Code of conducts and Ethics* held at Masinde Muliro University of Science and Technology 5<sup>th</sup> January 2012.
- Fourth African Regional Conference of Vice Chancellors, Deans of Science, Engineering and Technology (COVIDSET 2011) on *Harnessing Africa’s Scientific, Engineering and Technology Innovation for Sustainable Development: The Role of Universities* between 23<sup>rd</sup> - 25<sup>th</sup> November 2011 at Birchwood Hotel, Johannesburg, South Africa
- International conference on Tropical Forest Resources held at Masinde Muliro University of Science and Technology between 6<sup>th</sup> and 10<sup>th</sup> June 2011.
- African Higher Education Harmonization and tuning Validation workshop held between 14<sup>th</sup> - 15<sup>th</sup> March 2011 at Hilton Hotel Nairobi, Kenya.
- Seminar on Intra –ACP Academic Mobility Scheme held between 3<sup>rd</sup> – 4<sup>th</sup> March 2011 at crown Hotel, Nairobi, Kenya
- .Regional conference on “ *Quality Education for intercultural Understanding and regional development*” held between 1<sup>st</sup> -4<sup>th</sup> October 2010 at Kigali Institute if Science and Technology.
- Workshop on ‘*Pedagogy and ICT Capacity Building*’ held at Masinde Muliro University of Science and Technology between 16<sup>th</sup> -27<sup>th</sup> August 2010.
- The 1<sup>st</sup> Engineering, Science and Technology conference on “*Science and Technology for engineering innovation and industrialization*” held at Masinde Muliro University of Science and Technology between 9<sup>th</sup> - 11<sup>th</sup> June 2010.
- Workshop on ‘*The Role of Uniformed Forces in Disaster Management*’ held at Masinde Muliro University of Science and Technology between 13<sup>th</sup> – 14<sup>th</sup> May 2010.
- Seminar on ‘*The use of Information Communication and Technology (ICT) for Effective University Teaching and Learning*’ held on 7<sup>th</sup> January 2010 at Masinde Muliro University of Science & Technology, Kakamega, Kenya.
- Conference of Vice – Chancellors, Deans of Science, Engineering and Technology on *Revitalizing Science, Engineering and Technology Research and Deployment for Sustainable Development in Africa* at Speke Resort and Conference Centre between 23<sup>rd</sup> – 25<sup>th</sup> November 2009.
- The Kenya DAAD Scholars Association (KDSA) Conference on Science and Technology for Development held between 4<sup>th</sup> – 5<sup>th</sup> June 2009 at Masinde Muliro University of Science and Technology.
- 8<sup>th</sup> Workshop on sustainable horticultural production in the tropics on value chain of fruits for local market, export and processing held between 8<sup>th</sup> – 11<sup>th</sup> December 2008 at Masinde Muliro University of Science and Technology.
- Workshop for administrators conducted at Bishop Stam Pastoral Centre on Thursday 9<sup>th</sup> October 2008.
- *Workshop “Supersolid 2008”* held at the Abdus Salaam International Centre for Theoretical Physics (ICTP), between 18<sup>th</sup> and 22<sup>nd</sup> August 2008.
- The *Gender Sensitization* workshop conducted at Bishop Stam Pastoral Centre on Friday 14<sup>th</sup> February 2008.
- In-country Training Workshop on Higher Education Science and Curricular Reforms: *African Universities Responding to HIV & AIDS* held on 8<sup>th</sup> – 10<sup>th</sup> May 2007 at KIE, Nairobi, Kenya.
- 1<sup>st</sup> International Conference on *Disaster Management and Human Security in Africa (DMHSA)* held on 11<sup>th</sup> – 13<sup>th</sup> October 2006 at Bishop Nicholas Stam Pastoral Centre, Kakamega, Kenya.
- Seminar on *Implementation of ISO 9001:2000 on Quality management systems* held on 29<sup>th</sup> – 31<sup>st</sup> may 2006 at Western University College of Science and Technology (WUCST), Kenya.
- School on “*Quantum Phase Transitions and Non-Equilibrium Phenomena in Cold Atomic Gases*” held on 11<sup>th</sup> – 22<sup>nd</sup> July 2005 at Abdus Salam- ICTP Miramare, Trieste-Italy.

- Seminar organized by Moi University Holdings Ltd. and International Finance Corporation held on 23<sup>rd</sup>-26<sup>th</sup> May, 2005 on “*Enhancing SME Management Consulting Skills*”.
- Academic staff induction workshop held on 16<sup>th</sup>-17<sup>th</sup> August, 2004 on the “*Creation of a Culture of Excellence at WUCST through Quality Assurance and Teamwork*”.
- Joint seminar organized by Kenya Science Teachers college (KSTC) and Western University College of Science & Technology (WUCST), on “*New Trends in Teaching of Science in Schools, colleges and Universities, Integrating Content, Methodology and Evaluation in Science Teacher Education*” held on 3<sup>rd</sup> and 4<sup>th</sup> August 2004.
- The 1<sup>st</sup> Kenya DAAD Scholars Association conference held on 28<sup>th</sup> – 1<sup>st</sup> December 1995 on “*Strengthening the relationship between the Universities and Industry*”.
- Conference organized by the Kenya National Association of Physicists held on 18<sup>th</sup> – 21<sup>st</sup> September 1991 on “*Physics for the future in Africa*”.

## 21. KEY TRAININGS AND EXPERIENCES

- A training on Strategic Leadership and Management of Higher Education Institutions for DEANS, DIRECTORS, CAMPUS COORDINATORS/ DIRECTORS AND CHAIRMEN OF DEPARTMENTS held between 26<sup>th</sup> and 28<sup>th</sup> March, 2018 at Masinde Muliro University of Science and Technology (MMUST) .
- Renewable Energy training at the National Institute of Solar Energy (NISE), Gurugram, India , held between 1/8/2017 and 21/8/2017 under the Third Indian Africa Forum Summit ( IAFS III).
- The DIES National Multiplication Training (NMT) in Higher Education Management 2013-2014, titled ‘*National Multiplication Training on Curriculum Development and Review for Newly Chartered Public Universities in Kenya: implementation and Accreditation Part 2*’ held between 4<sup>th</sup> and 6<sup>th</sup> June 2014 at Nakuru. **Topics covered includes:** Hands on Development and review of academic Programmes; Volume 2 of *The Road Map to Quality: A Handbook for Quality assurance in Higher education*; In depth coverage of Part IV of the *University Regulations 2014*; In-depth coverage of the *Third Schedule of the University standards and Guidelines 2014* and *Programme Accreditation: The German Experience*.
- Organized and facilitated a University – wide workshop for ALL academic staff at Masinde Muliro University of Science and Technology as part of the The DIES National Multiplication Training (NMT) in Higher Education Management 2013-2014, titled ‘*University Multiplication Training on Curriculum Development and Review for Newly Chartered Public Universities in Kenya: implementation and Accreditation*’ held between 23<sup>rd</sup> and 24<sup>th</sup> January 2014 at MCU, MMUST in Kakamega, Kenya. **Topics covered includes:** *Quality assurance in Higher education, Programme Accreditation Standards and Guidelines by the Commission for University Education and the Kenyan Experience in programme Development and Review*.
- The 100th 5-Day **Corporate Governance Training** for Board Chairmen, Directors, Boards of Governors, Commissioners, CEOs, Senior Managers and all cadres of top leaders held between December 16-20, 2013 at Sarova White Sands Beach Resort & Spa, Mombasa, Kenya. **It covered the following:** *Principles and Practices, legal environment, ethical leadership and integrity, strategic thinking, reporting, disclosure and accountability, risk mitigation, Knowledge management and ICT, responsible business and service provision, corporate social responsibility and citizenship, The financial report, Board dynamics.*
- The DIES National Multiplication Training (NMT) in Higher Education Management 2013-2014, titled ‘*National Multiplication Training on Curriculum Development and Review for Newly Chartered Public Universities in Kenya: implementation and Accreditation Part*

*I'* held between 2<sup>nd</sup> and 4<sup>th</sup> December 2013 at Nakuru. **Topics covered includes:** *Quality assurance in Higher education, Programme Accreditation Standards and Guidelines by the Commission for University Education and the Germany Experience in programme Development and Review.*

- 3<sup>RD</sup> Council and University Management Seminar (Coming in January 2013) on “*Quality University Education in a Competitive and dynamic global market*”. It will cover the following: *Resource Mobilization for University Education; Financing Management, Infrastructure Development and Human Capital Development; Transformational Leadership: A Holistic Perspective for a Successful Organization; Quality Management Systems; Quality Assurance in University; Role of University in Socio-economic Development; Corporate Governance: The Role of Council in University Governance; University Governing Instruments: University Act, Chardter and Statutes.*
- University Management For Quality Education (Target group: University Council) held at Mombasa Beach Hotel between 12<sup>th</sup> and 17<sup>th</sup> February 2012.
- Performance Management by the Public Sector Reforms and Performance Contracting (2009) covering: *Result Based Management; Design and Implementation of Performance Contracts; Citizens' Service Delivery Charters; Performance, Monitoring and Evaluation; Rapid Result Approach; Performance Appraisal System; Transformative Leadership; Project Monitoring and Evaluation*
- Quality Management Systems ( Implementation of ISO 9001:2008) by KEBS
- Quality Management Systems ( Implementation of ISO 9001:2000) by KEBS
- Higher Education Science Curricular Reforms: *African Universities Responding to HIV / AIDS (2007)*
- Integrating HIV/AIDS into University functions (2012)
- Enhancing SME Management Consulting skills Course (2005)
- 

## 22. QUALITY AUDIT INSPECTIONSAND EVALUATION OF CURRICULA

- Participated in the National Special Quality Audit Inspection conducted between 23<sup>rd</sup> January, 2017 and 3<sup>rd</sup> February, 2017, of Universities (Public and Private) authorized to operate in Kenya undertaken by the Commission for University Education that was meant to safeguard the quality of University education as stipulated in The Universities Act No. 42 of 2012; The Universities (Amendment) Act, 2016; The Universities Regulations 2014; and The Universities Standards and Guidelines, 2014.
- I participate in the evaluation of Physics curricula for the Commission for University Education

## 23. KEY COMMITTEES / BOARD MEMBERSHIP AND REPRESENTATION

- Establishing Webuye campus in line with the CUE standards and guidelines, 2014 – to date
- Kitale University College Task Force, 2014
- Steering Committee, MMUST Curriculum Development, Review and Implementation, 2014.
- Standing Committee of senate Curriculum Development, Review and Implementation, 2014.
- Steering Committee for the Establishment of MMUST School of Medicine, 2014
- MMUSTs Appointment and Promotions Committee, 2014

- Adhoc Committee on Students' unrest, MMUST, 2014
- Adhoc Committees on Examination irregularities, MMUST, 2014
- MMUST Senate Representative to Joint Admission Board, 2014 .
- Management Review Committee (MRM) for ISO 9001:2008 Certification by KEBS, 2011-2013.
- Senate Representative to the Joint Admission Board, 2013
- Quality Assurance Board (QAB) for ISO 9001:2008 Certification by KEBS, 2011-2013.
- Staff Establishment, Training and Appraisal Committee, 2008-2013.
- Appointments and promotions Committee ( As Dean; Occasionally as Senate Representative)
- Budget and Estimates Committee, 2008-2013.
- Member, UWB on PSSP programme, 208-2013.
- The Privately Sponsored Students Programme (PSSP) Board,2008- 2013.
- Deans' Committee,2008- 2013.
- Physical Development and Project Implementation Committee, 2008-2013.
- Alternate University Tender Committee member, 2013.
- Graduation, Ceremonies, Prizes, and Awards Committee2008-2013.
- MMUST Gender Research Committee
- Strategic planning and Implementations / Reviews Committee; MMUST
- Committee of Senate investigating Examination Irregularities ( As Dean FS)
- Students Disciplinary Committee
- Academic Linkages Committee
- Intellectual Property Rights Policy Committee
- MMUST Gender Research Committee
- Technical Committee on Shows and exhibitions
- Library Printing and Publications Committee
- Research and Extensions Committee
- Senate Technical Committee for the Botanic Garden
- Drafting of MMUST Charter
- Research and Extension Committee ( Drafted Policy)
- ICT Policy Development Committee
- New Science Complex Construction Committee ( Technical Member and User)
- Drafting a policy on Sourcing and Appointing Part-time Lecturers at MMUST
- Member, Short listing committee ; ( Ass. Professor and Professor).
- Convener, 2<sup>nd</sup> Council and University management retreat (2012)
- Member, Organizing Committee on International Conference on Tropical Forest Resources (2011)

#### 24. COMMITTEES CHAIRED.

- Committee reviewing retirement policy, 2014
- University Council Induction Retreat on the Operations of the University, 2014
- Steering Committee MMUST Curriculum Development, Review and Implementation, 2014.
- MMUST staff Housing Scheme PAHSE I, II (2011- 2013)
- Short listing committee ( for various categories / grades)
- EADB proposal writing for funding (2013)
- ADB equipment implementation committee(2013-2015)
- ADB capacity building EOI and bid drafting committee(2013)

- Part Time Lecturers Recruitment and Management Policy committee (2013)
- 3<sup>rd</sup> Council and University management retreat (2013)
- Review of Deans and Directors' Allowances, MMUST (2012)
- Review of Part Time Lecturers Remuneration rates –(2011)
- Review of Fee structures of all programmes in the University (2012)
- Space inventory and allocation 2012-2013
- Occasionally, Deans' Committee 2010-2013
- Faculty Board of Examiner
- Faculty Board
- Proposals for funding
- Staff Welfare committees of on Staff Housing
- Departmental , Graduate studies programme reviews
- Thesis Oral Examinations of students in Faculty of Science

## 25. RESEASRCH GRANTS

- A NACOSTI grant of **KSh. 600,000** for a study on “*The Ab Initio Studies of the Properties of Skutterudite Materials for Thermoelectric Energy Conversion from waste resources*”. The PhD student beneficiary was Jared Manasse Marango Kitui, 2015-2018.
- A NACOSTI grant of **KSh. 200,000** for a study on “*Structural and Mechanical Properties of Bulk Scandium Trifluoride Investigated by First-Principles Calculations*”. The MSc student beneficiary was James Sifuna, 2016-2017.
- A NACOSTI grant of **KSh. 600,000** for a study on “*Thermodynamic Properties of D-Wave Symmetry of Cooper Pair Interacting With a Normal Electron In High Temperature Superconductors*”. The PhD student beneficiary was Jared P. O. Odhiambo, 2013-2016.
- North-South-South (NOSOSO) programme that covers short intensive training in renewable energy from which 18 students from Helsinki Metropolia University, Makerere University, Kisii University and Masinde Muliro University of Science and Technology benefitted (**KSh.11 million**) 2013-2015.
- HP Catalyst initiative – developing e-science facilities at MMUST (**KSh.5 million**), 2013-2015.

## 26. FUND-RAISING, FACILITY DEVELOPMENT AND CAPACITY BUILDING

- Proposal to EADB to fund infrastructure development ( Engineering complex) at MMUST at the tune of **KSh 580 million**. Approved by management and being considered by Council
- MMUST staff Housing Scheme PhaseII, 2014 ( **KSh. 10.6Million**).
- North-South-South (NOSOSO) programme that covers short intensive training in renewable energy from which 18 students from Helsinki Metropolia University, Makerere University, Kisii University and Masinde Muliro University of Science and Technology benefitted (**KSh.11 million**). On going.
- HP Catalyst initiative – developing e-science facilities at MMUST (**KSh.5 million**)
- HEST/ADB Equipment initiatives ; attracted **KSh.394million** worth of equipment
- HEST/ADB capacity building in Applied Sciences and Engineering; a consortium of three Universities
- MMUST staff Housing Scheme PhaseI , 2013 ( **KSh. 3.6 Million**). Title deed issued..

- Facilitated the donation of Biological Science Equipment worth *KSh.20 million* to MMUST.
- Developed market driven programmes in sciences that generates funds through PSSP *KSh. 150million per year*
- Annual *Prof T. W. Sakwa Award* for the best Science Student ( *KSh. 5,000*). On going.
- Proposal to the Korean Government for infrastructure development at MMUST (Submitted)
- Proposal to the Korean Government for infrastructure development at MMUST (Submitted and favorable response given)

## 27. CONTRIBUTION TO MMUST INSTITUTION

- Restructuring and putting in Place effective administrative structures, processes and systems at MMUST-Webuye campus that complied with CUE requirements. ( 2016 – to date)
- Coordinating Curriculum Development, Reviews and implementation (2014 - 2016).
- Facilitated the Curriculum Development, Reviews and implementation processes (2014-2016).
- Providing leadership to research groups; the Computational and Theoretical research groups.
- Teaching and research, at the department.
- Developed and implemented programmes
- Founding Dean, Faculty of Science, MMUST.
- Founded and established the School of Agriculture, Veterinary Sciences and Technology
- Founded, established and Coordinated the School of Health Sciences(*Upto 2012*)
- Founded, established and Coordinated the School of Nursing and Midwifery (*Upto 2012*)
- Founded and established the East African Journal of Engineering, Science and technology
- Initiated the Establishment of the Centre for Kakamega Forest studies ( 2010)
- Providing academic leadership at Faculty level
- Organizing and facilitating academic activities in the Faculty
- Addressing issues related to staff welfare and staff retention through a welfare association, MMUSHA. Phase I is Complete and Title Deeds awarded. Phase II is ongoing.
- Addressing welfare issues to both students and staff in the Faculty
- Addressed various assignments as directed by Senate from time to time
- Addressed various assignments as directed by my Senior Officers from time to time

## 28. CONTRIBUTION TO THE COMMUNITY

- Executive Member, BOM, AIC – Konnoin Secondary High School
- Providing market driven products that addresses emerging issues in the society.
- Training graduates that meets the expectations of the society
- Motivation speeches in Schools, Churches and community gatherings.
- Ordained Minister of the Word of God by Oasis of Glory Ministry, Kisumu.
- Member, BOG, Friends Naitiri Girls High School
- Member, BOG, Naitiri Boys High School
- Member, BOG, Nabing'eng'e Secondary School

## 29. CONTRIBUTION TO NATION

- A Pre-qualified Peer Reviewer for CUE.
- Formation of the consortiums, linkages and networks nationally.



- External Examiner for Physics at the University of Karatina and Kabarak University
- Promoting Physics Education Through Kenya Physical Society
- Training graduates that the Government requires in providing the necessary services to its people

## 30. INTERNATIONAL CONTRIBUTION

- Formation of the linkages and networks internationally eg NOSOSO.
- Undertaking research that is of great interest to the world and may transform major social-economic sectors in the world; *Superconductivity*
- Advised on policy issues on Harnessing Africa's Scientific, Engineering and Technology Innovation for Sustainable Development: The Role of Universities, through COVIDSET.
- Published research in different reputable journals namely; IJPAP, EAJPAS, APR, J-STEM, EAJEST and IJPM. This effective dissemination of research findings enables other physicist to appreciate my contribution to the world of Knowledge.

## 31. LEADERSHIP AND MANAGEMENT SKILLS

While as Dean of the Faculty of Science

- Provision of academic leadership in the faculty
- Representation of the faculty in the University, National, and International meetings
- Formulation and implementation of strategic plans, academic plans, work plans, budgets plans and procurement plans of the faculty
- Resource mobilization
- Design, procure and implement management systems
- Cascade Performance contracts
- Process results for approval by Senate
- Read names of graduates and present Candidates for the award of degrees.
- Chairing Oral Examinations of Theses
- Representation to Deans Committee
- Representation in Senate
- Initiating, establishing and strengthening linkages.
- Policy development and implementation

## 32. LINKANGES

- The Abdus Salaam – ICTP, Trieste Italy.
- NOSOSO collaboration.
- Member of a Consortium / Conglomerate of Universities on capacity building namely; MMUST, JKUAT and TUC

## 33. INTEGRITY AND CHARACTER

- Has clearance from Credit Reference Bureau (CRB)
- Has Certificate of Clearance by Higher Education Loans Board.
- Has Tax Compliance Certificate from Kenya Revenue Authority
- Cleared by the Ethics and Anti-corruption Commission

- Has Certificate of Good Conducts

#### 34. PROFESSIONAL SOCIETIES

- Member of the Kenya National Academy of Sciences (KNAS) *No. 123/2012*
- Member and secretary General of the Physics Society of Kenya (PSK) *S.No. 017*
- Member of the Kenya Institute of Management. *Membership No. 44411*
- Member of the Association of Disaster Management and Conflict Resolution of Kenya
- Kenya National Chamber of Commerce and Industry (KNCCI)
- Biophysical Society (BPS) Africa.

#### 35. SPEAKING ENGAGEMENTS

- Education Forums on motivation speeches (annually)
- Career days on career choices (annually)
- Orientation Forums on work ethics and good conduct (annually)
- Church Forums on Guiding and Counseling, and inspirational sermons (as and when invited)
- Public Barazas as a leader and role model (as and when invited).

#### 36. REFEREES

Dr Joseph Owino  
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**Prof. Thomas Sakwa** : ..... **Date: Monday, June 25, 2018**