



Dr. Rapando Wakhu Bernard

CURRICULUM VITAE

BRIEF PROFILE

Bernard is a dynamic physicist with a focus on teaching, research and innovation in theoretical physics. He has passion for condensed matter physics, specifically, High Temperature Superconductivity. He has over nine years of university teaching and research experience, has published over 22 articles in refereed journals and organized academic conferences and workshops. He has supervised Five M.sc students to completion. In his line of duty he has served as Chairman of Department of Physics on acting basis at Masinde Muliro University of Science and Technology and also serves as a member of the Open, Distant and e- Learning (ODEL) Board in the same university. Currently, he is a Senior Lecturer of physics at MMUST and sits on the Editorial Board of the International Research Journal of Multidisciplinary Science and Technology (IRJMRS)

PERSONAL DETAILS

Surname	Rapando
Other names	Wakhu Bernard
Date of birth	25 th December 1974
Place of birth	Marama central location, Butere District.
ID NO.	13052549
Nationality	Kenyan
Marital status	Married
Contact address	MMUST, P.O 190-50100, KAKAMEGA , KENYA
Cell phone no.	0721998603
E- Mail	brapando@ymail.com brapando@mmust.ac.ke
Occupation	University Lecturer
Languages of communication	English, Kiswahili

PERSONAL VISION

A world class educator and imparter of knowledge and inspiration for societal change and development, fearing God who spanned the universe by His hand.

EDUCATION BACKGROUND

1. Postgraduate Education

2012-2015: Doctor of Philosophy in Physics (PhD. Physics) of University of Eldoret, Eldoret, Kenya.

-Area of specialization-Theoretical Physics, High T_c Superconductivity.

2008-2011: Master of Science in Physics (MSc. Physics) of Masinde Muliro University of Science and Technology, Kakamega, Kenya.

-Area of specialization-Theoretical Physics, High-T_c Superconductivity.

2. Undergraduate Education

2003-2006: Bachelor of Education (Science) Degree, Physics Major, Minor Math. Second Class Honors, Upper Division (67%) of Moi University, Eldoret, Kenya.

1994-1996: Diploma in Education (Science), Physics and Math, First class, Kagumo Teachers College, Nyeri, Kenya. (Best GPA student with GPA of 10.11 out of 12)

3. Secondary Education

1989-1991: Kakamega High School- Kenya Certificate of Secondary Education (K.C.S.E), C+ of 73 points.

1988: Butere Boys High School

4. Primary Education

1980-1987: Eshirembe Primary School - Kenya Certificate of Primary Education (K.C.P.E), 61 out of 72 points (Best in the school)

WORK EXPERIENCE

(a)

S. No.	Period	Employer/Sponsor	Designation
2	January 1997-2008 October 2008-2012 January 2012-October 2012	Teachers Service Commission Teachers Service Commission Teachers Service Commission	Teacher H.O.S, Physics Senior H.O.D, Science Dpt.
3	August 2007- October 2012	District Planning Committee, Vihiga.	-District Trainer for Physics-SMASE Program -Center Co-coordinator,

			Kaimosi center
4	June 2011-December 2012	Kenya National Examination Council	Examiner for Physics paper II
5	October 2012-March 2015	Karatina University	Tutorial Fellow Grade XI, Physics
6	March 2015- August 2015	University of Kabianga	Lecturer, Grade XII
7	September 2015- Date	Masinde Muliro University of Science and Technology	Lecturer, Grade XII

(b) University teaching experience

- i. Full-time Senior Lecturer, grade XIII, department of physics, Masinde Muliro University of Science and Technology, April 2021- Date.
- ii. Full-time Lecturer, grade XII, department of physics, Masinde Muliro University of Science and Technology, September 2015- March 2021.
- iii. Full- time lecturer, grade XII, department of Physical Sciences, University of Kabianga- March 2015 – August 2015.
- iv. Full time-Tutorial Fellow, Grade XI, department of Physical Sciences, Karatina University - October 2012- March 2015.
- v. Part time-Assistant Lecturer, Department of Physics, Masinde Muliro University of Science and Technology -January 2012 to December 2013.
- vi. Part time- Lecturer, Department of Science, Technology and Engineering, Kibabii University -September 2016 to December 2017.
- vii. Part time- Lecturer, Department of Information Technology, Jomo Kenyatta University of Agriculture and Technology –September 2017-2018

THESIS

PhD Thesis: The t-J Model and electronic dipoles in High-Temperature Superconductors (2015)

MSc. Thesis: High Critical Temperature of Hybridized Cuprate Systems (2011)

SUPERVISION

(a). Supervised to completion;

- i. Socliff Isiaho SPH/ G/013/2015-MSc (Physics) Masinde Muliro University of Science and Technology (2021)
- ii. Emily Munasia SPH/ G/016/2015- Master of Science in Physics. at Masinde Muliro University of Science and Technology (2019)
- iii. Edward Igunza Salano SPH/G/02/15- Master of Science in Physics, at Masinde Muliro University of Science and Technology (2019)
- iv. Mbiye Enos, MSC/PHY/009/13- Master of Science in Physics, at Kibabii University (2018)

- v. Alfayo Ochola, SPH/G/40/12- Master of Science in Physics, at Masinde Muliro University of Science and Technology (2018)
- (b). Supervising.
- i. Aggrey Khisa Mukoya SPH/H/02/12- PhD (Physics)- Masinde Muliro University of Science and Technology-Writing thesis

EXAMINATION OF THESIS

Examined six MSc Physics Theses;

- i. Alima Mukasia, SPH/G/05/15, Masinde Muliro University of Science and Technology (2018)
- ii. Margdaline Ligavo Musanga, SPH/G/08/15, Masinde Muliro University of Science and Technology (2018)
- iii. Antony Ingosi, SPH/G/10/09, Masinde Muliro University of Science and Technology(2018)
- iv. Yonah Situma Msc/Phy/005/16, Kibabii University (2018)
- v. Otimo Solomon SPH/ G/12/2012, Masinde Muliro University of Science and Technology (2017)
- vi. James Simiyu Sifuna SPH/ G/10/2015,Masinde Muliro University of Science and Technology (2017)

PUBLICATIONS

1. Munasia E., **Rapando B.W.**, Ndinya B. (November 2020). Angular Dependence of d-wave Superconductivity in Irradiated Cuprates. *International Journal of Research and analytical Reviews (IJRAR)*. Vol. 7(4).Pp 22-28.
2. **Rapando B.W.** (November 2020). Size and Coherence Length of Cooper pairs in Superconductors. *International Journal of Research and analytical Reviews (IJRAR)*. Vol. 7(4). Pp 519-522.
3. Isiaho S.L, Otunga H.O, **Rapando B.W.** (June 2020). Structural, Magnetic and Electronic properties of NbN Polymorphs by Ab- Initio Study. *Journal of Multidisciplinary Engineering Science and Technology (JMEST)*. 7 (6). Pp 12050-12057.
4. Mang'are P.A., Nditu F.G.,Rotich S.K.,**Rapando B.W** (June 2020). Optimal Protection Index in Malaria Vector Host Elicited by 10-34kHz Animal Sounds. *American Research Journal of Physics*. 6(1): 1-29.
5. Mbiye E., **Rapando B.W.** (2019). Heat Currents at the Transition Temperature of Mercury Doped Cuprate Superconductors. *Journal of*

- Multidisciplinary Engineering Science and Technology (JMEST)*. Vol.6 (10). Pp. 10922-10926.
6. Munasia E., **Rapando B.W.**, Ndinya B. (2019). Superconducting Parameters of Cuprates due to Microwave Irradiation in the framework of the Variational Theory. *Journal of Multidisciplinary Engineering Science and Technology (JMEST)*. Vol.6 (10). Pp. 10927-10932
 7. Salano E.I, Ndinya O.B, **Rapando B.W.** (July 2019). Energy and specific heat capacity of high T_c superconducting MgB₂ in the two band model *Journal of Multidisciplinary Engineering Science and Technology (JMEST)*. Vol.6 (7). Pp. 10361-10369.
 8. **Rapando B. W**, Isoe W. M, Mang'are P.A, Ayodo Y.K. (2018). Internal pressure and Speed of Sound in Neutron Stars. *Journal of Multidisciplinary Engineering Science and Technology (JMEST)*. Vol.5 (10). Pp 8880-8884.
 9. Mbiye E. A, **Rapando B.W**, Oloo J.O. (2018). Thermal Diffusivity in Mercury- Doped Superconductors. *Journal of Multidisciplinary Engineering Science and Technology (JMEST)*. Vol.5 (10). Pp 8919-8926.
 10. Mang'are P. A, Ndiritu F.G, Rotich S.K, Makatiani J.K, **Rapando B.W.** (2018). Analysis of the Acoustic Propagation Parameters of the Natural Sounds of *Delphinapterus leucas* and *Odorrana tormota* Fundamental in the Startle of the Female *anopheles gambiae*. *International Journal of Advanced Research in Physical Science (IJARPS)*. Vol. 5, Issue 7, pp13-23.
 11. Ochola A. A, Barasa H. W, **Rapando W. B.** (December 2017), Ground state Energy of induced superconductivity and its variation with inter-atomic distance. *International Research Journal of Multidisciplinary Science and Technology (IRJMRS)*, Vol. 2(9). Pp 393-397
 12. Ochola A. A, **Rapando W. B**, Barasa H. W, Ayodo Y.K. (November 2017), The wave function of induced superconductivity: The Proximity effect. *International Research Journal of Multidisciplinary Science and Technology (IRJMRS)*, Vol. 2(9), pp 380-385.
 13. **Rapando B.W**, Tonui J.K, Khanna K.M, Mang'are P.A. (2016), The Diagonalized t-J Hamiltonian and the Thermodynamic Properties of High-T_c Superconductors, *American Research Journal of Physics (ARJP)*, Vol.2016, pp 1-11.
 14. Odhiambo J.O, Ayodo Y.K, Sakwa T. W, **Rapando B.W.** (2016, July), Thermodynamic Properties of Mercury based Cuprates due to Cooper pair-electron interaction, *Journal of Multidisciplinary Engineering Science and Technology (JMEST)*, Vol.3(7), pp 5241-5248.
 15. **Rapando B.W**, Khanna K.M, Tonui J.K, Sakwa T.W, Muguro K.M, Kibe H. Ayodo Y.K, Sarai A.(2015), The Dipole mediated t-J model of high-T_c

- Superconductivity, *International Journal of physics and mathematical sciences*, Vol.5(3). Pp 32-37.
16. Mukoya A.K, Sakwa T.W, Khanna K.M, Ayodo Y.K, Sarai A, **Rapando B.W**, 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*, Vol.5(3), pp1-6.
 17. Kibe H.E, Sakwa T.W, Ayodo Y.K, **Rapando B.W**, Khanna K.M, Sarai A.(2015), Thermodynamic properties of heavy fermion superconductors, *International Journal of physics and Mathematical sciences*, Vol. 5(2), pp23-33.
 18. **B.W. Rapando**, Y.K. Ayodo, T.W. Sakwa, K.M. Khanna, A.Sarai, Mukoya A.K (2013), Transition Temperature of Hybridized Cuprate Systems, *International Journal of Physics and Mathematical Sciences*, Vol. 3(2), pp 104-109.
 19. Sakwa T.W, Ayodo Y.K, A.Sarai, Khanna K.M, **Rapando B.W**, Mukoya A.K¹ (2013), Thermodynamics of a Grand-Canonical Binary System at Low Temperatures, *International Journal of Physics and Mathematical Sciences*, Vol. 3(2), pp 87-98.
 20. T.W.Sakwa, Y.K.Ayodo, P.Saisi, **B.W. Rapando**, (2013), A non-degenerate Binary system of Helium Isotope, *East African Journal of Engineering, Science and Technology*, Volume1 (2), pp 66-74.
 21. Y.K Ayodo, T.W Sakwa, K.M. Khanna, **B.W Rapando**, (2011), The Prospects and challenges of High Temperature Superconductors, *J-STEM*, Vol.4 Nos.1&2.
 22. L.S Chelimo, K.M Khanna, J.K Tonui, **B.W. Rapando**, D.K Kandie, F.W Masinde, J.K Bitok, (2013), Incommensurability of HCP Solid ⁴He Quantum Crystal, *International Journal of Physics and Mathematical Sciences*, Vol.3(2), pp 73-78.
 23. Y.K Ayodo, T.W Sakwa, **B.W Rapando**, (2011) University Laboratory Manual, ISBN No.978-9966-21-011-1 (Draft awaiting publication)

COURSES, SEMINARS, CONFERENCES & WORKSHOPS

- (i) Attended BPS International conference; Conference on the International Trends of Biophysical Education, Research and Innovation: Case of Africa on 6th August 2021.
- (ii) Attended the Workshop organized by the School of Natural Sciences, MMUST and presented a paper entitled 'The advent of the CBC

- Curriculum in Kenya, How ready are our Universities' held on 9th June 2021.
- (iii) Attended workshop on School Practice organized by the School of Education, MMUST 2021.
 - (iv) Attended the second Young Scientists MSSEESSA conference on Materials for Solar Energy Conversion held from 4th-6th November 2020
 - (v) Facilitated an online Biophysical Society conference entitled "Embracing Biophysics in Africa: Challenges and Strengths" held on 21ST AUGUST, 2020.
 - (vi) Facilitated a workshop entitled 'Multidisciplinary Biophysical Society sponsored curriculum development and chapter promotion', held at Masinde Muliro University of Science and Technology, Kakamega on 2nd July 2019.
 - (vii) Facilitated and presented a paper in a two-day conference entitled, 'Exploring Biophysics Diversity for sustainable Industrial and Economic Development', held at Masinde Muliro University of Science and Technology held on 3-4th July 2019.
 - (viii) Attended and Presented a paper entitled 'Interior pressure in neutron stars' in the 1st annual International conference on 'Enhancing Research, Innovation and Entrepreneurial skills for attainment of sustainable development goals' at Sigalagala national Polytechnic on 4th Oct. 2018
 - (ix) Attended an ISO-9001-2015 training at MMUST on 31st Aug 2018.
 - (x) Facilitated the first Bio Physics Conference on harnessing scholarly potential in Africa held in MMUST on 6th July 2018.
 - (xi) Attended and presented a paper at an International conference at Kibabii University on 6th May 2016.
 - (xii) Attended a research team building workshop facilitated by University of Kabianga at Egerton University, 21st-22nd May 2015.
 - (xiii) Facilitated a university curriculum review workshop at Masinde Muliro University of Science and Technology, 2014.
 - (xiv) Attended the national conference of the Kenya Physics Society on 6th March 2014.
 - (xv) Attended an ISO 9001 2008 training workshop at Karatina University on 21st march 2013.
 - (xvi) Attended the Kenya DAAD Scholars Conference held at Masinde Muliro University of Science and Technology and presented a paper on High Temperature Cuprates on 12th June 2009.
 - (xvii) District Trainers National In-service Training at CEMASTE, Nairobi - 2007-2009.
 - (xviii) Basic Education Administration Training at Asahikawa city, Japan, from 12th Oct. to 29th Oct 2009
 - (xix) Intel-Teach Program, Getting started course, August 2011.
 - (xx) Advanced Leadership Conference by Hagai Institute International, Nairobi in 2003
 - (xxi) Leadership Training by Christian Churches Educational Association (C.C.E.A), Mombasa in 2000.

NATIONAL AND INTERNATIONAL ASSIGNMENTS

- (i) Member of the physics panel for the development of Junior and senior school Competence Based Curriculum (CBC) of the Republic of Kenya. 16th December 2019
- (ii) Editor and a member of the advisory committee of the International Research Journal of Multidisciplinary science and Technology, 25th Nov. 2017-date.

RESEARCH GRANTS AND SCHOLARSHIPS

- i. Applied for a collaborative research fund entitled 'Collaborative interventions to control desert locusts invasion in Kenya' for the 2019/2020 grants of the NRF

PROFESSIONAL BODIES

Member of the Kenya Physics Society. Reg. No. 032.

CONTRIBUTION TO UNIVERSITY EDUCATION

- i. Acting Chairman of Department, Physics, Masinde Muliro University of Science and Technology, 20th -30th July 2021, 19th Aug.-6th Sep 2019, 13th May 2019 - 17th May 2019; 4th June 2018 - 6th Aug 2018; 6th June 2016-7th July 2016.
- ii. Acting Examination coordinator for the School of Natural Sciences, MMUST, 5th Feb 2018-2nd May 2018.
- iii. Member of Open and Distance Learning Directorate, Masinde Muliro University of Science and Technology, September 2017-date.
- iv. Examination Coordinator of the physics department, Masinde Muliro University of Science and Technology, 2015-2017.
- v. School practice advisor MMUST (2017,2018,2019)
- vi. Supervised Teaching Practice, Karatina University (2013).
- vii. Reviewed undergraduate physics curriculum, Karatina University, 2013-14.

COLLABORATIONS AND LINKAGES

- I. Participated in linking d-School world Learning organization to MMUST. Had an online meeting on Education learning and artificial intelligence on 19th Aug. 2021.

CONTRIBUTION TO SOCIETY

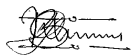
- (i) Member of the advisory committee of the Christian Union, MMUST-2019-Date
- (ii) Guest Speaker at Shibembe Secondary School annual general meeting on 1st aug. 2019.
- (iii) A member of Butere Development Angaza Initiative from 2019 to date.

- (iv) Motivational Speaker- Angira Primary school, Kisumu 2017 and 2018- the school mean score improved from 290.18 to 300.70
- (v) Key note speaker on the importance of STEM- Friends School Senende- 11th July 2018
- (vi) Elder and Leader of Evangelism Department, Grace Foundation church- 2018-Date.
- (vii) Vice Chairman, Christ Aroma Children Ministry; A ministry that sponsors the education of orphans in Tiriki West division.

REFEREES

- (i) Prof.T.W. Sakwa,
Masinde Muliro University of Science and Technology,
P.O Box 190,
Kakamega.
- (ii) Prof.K.M. Khanna,
University of Eldoret,
P.O.Box 1125
Eldoret.

Signed:



RAPANDO BERNARD WAKHU