

BONIFACE NDINYA CURRICULUM VITAE



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PERSONAL DETAILS

Name: Boniface Ndinya

Date of birth: - 20th October 1975

Permanent Address: - P. O. Box 3405 Kisumu, 40100

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EDUCATION BACKGROUND

1. Maseno University: – September 2007 – December 2010
Awarded Doctor of Philosophy in physics on 11th December 2011
Thesis title:- '**Repulsive electron-electron interaction and nuclear charge screening:- Ground state of two-electron atoms**'.
2. Maseno University: – September 2000 – December 2005
Awarded Master of Science degree in Theoretical Physics on 16th December, 2005
Thesis title: - '**Cavity-loss induced generation of entangled states**'
3. Kenyatta University: – July 1994 – October 1998
Bachelor of Education (Science) degree – Physics /Mathematics
Awarded **First Class Honors** on 16th October, 1998

SCHOLARSHIPS AND AWARDS

1. DAAD In-country scholarship for PhD in Physics at Maseno University:- From 01-09-2007 to 31-08-2010
2. DAAD Short-term research scholarship for PhD research at Max-Planck institute of Physics of Complex Systems, Dresden, Germany:-From 01-10-2008 to 31-03-2009
3. DAAD staff exchange fellowship at Makerere University:- 01-09-2014 to 30-11-2014
4. DAAD funding for workshop, "Exploring Biophysics Diversity for Sustainable Industrial and Economical Technology" amounting 7,233.00 EUR:- Tuesday, April 2, 2019

WORK EXPERIENCE (ACADEMIC)

1. Teachers Service Commission (TSC)
Graduate teacher II, Ombeyi Secondary School, Kisumu
1st September 2001-30th September 2005
Responsibility: **Games Master**
2. Maseno University
Tutorial Fellow:-Department of Physics and Materials Science.
1st October 2006-31st August 2010
3. Maseno University
Lecturer:-Department of Physics and Materials Science.
1st September 2010-30th September 2016
Responsibility: **Chairman, Departmental Postgraduate Committee**
4. Masinde Muliro University of Science and Technology
Senior Lecturer:-Department of Physics
1st October 2015 to 31st October 2021
Responsibility: **Chairman of Department of Physics**
5. Masinde Muliro University of Science and Technology
Associate Professor in theoretical Physics
1st November 2021 to date
6. National Research Fund reviewer
Attended the Research infrastructure support proposals meeting, at Heritage Resort, Naivasha, May 17th -19th 2017 (Certified as **NRF Peer Reviewer**)
7. Commission for University Education, Peer Review
Attended the Peer Reviews training at Masada Hotel, Naivasha, 20th – 21st September 2018 (Certified as **CUE Peer Reviewer**)
7. Reviewer: - American Journal of Modern Physics (AJMP) and Journal of Advances in Physics
8. Rongo University
External Examiner for the department of Physics from 1st June 2019

9. Member of the Deans Election Board (MMUST) :-August 18. 2020

SEMINARS AND WORKSHOPS

1. SMASSE INSET in physics:- April 2004- April 2006
2. Laser science and application: Induction course, JKUAT, Nairobi, March 25th-29th 2008
3. Laser science and application-JKUAT, Nairobi, April. 2009
4. SCOSTEP/ ISWI School of Space Science, Kenya Institute of Education, Nairobi, October 21st –November 1st 2013
5. Discipline management and Industrial relation training Programme for MMUST, MCU 002, MMUST, Kakamega, March 1st -4th 2016
6. National Cohesion and National Values Workshop at MMUST, MCU 002, MMUST, Kakamega 5/5/2016
7. Iso 9001:2008 Continual improvement training at Bishop Stam, Kakamega, August 29th - 30th 2016
8. Kenya-DAAD Scholars (KDSA) conference/AGM, Maseno University, Kisumu, June 1^{5th} - 1^{6th} 2017
9. KENET-Computational modeling and materials Science Workshop at Shieywe Hotel, Kakamega , July 6th -7th 2017
10. AYGN/KYGN Integrated workshop on Nuclear Advocacy and Communication; Safari Park Hotel, Nairobi , 29th -30th November 2017
11. Strategic leadership and management of higher education institutions at MMUST between 26th and 28th March 2018.
12. AFRA project counterpart and alternate counterparts meeting, NACOSTI, 25th April 2018
13. The 1st Biophysical Society Conference on Harnessing Scholarly Biophysical Potential in Africa, MMUST, Kakamega, July 6th 2018
14. Joint MSSEESA and DAAD International Conference on Materials Science Research for Sustainable Energy in Africa, University of Nairobi, Kenya, 26th -27th September 2018
15. The role of Supervisors in Quality Research and Proposal Writing, Kisumu Hotel, Maseno University, Kenya, 18th and 19th October, 2018
16. Gaps and lapses in law and policies for Chemical management systems towards responsible production and consumption in Kenya, Kisumu Hotel, Maseno University, 6th -8th March, 2019
17. Eastern Africa Global Navigation Satellite Systems and Space Weather capacity Building workshop, Pwani University, Kilifi, 13th -17th May, 2019
18. Exploring Biophysics diversity for sustainable industrial and economic development, Masinde Muliro University of Science and technology, Kakamega, 3rd -4th July 2019 (Convener)

19. Virtual workshop on Management of Internationalization by Young University Academic and Administrative Staff, *Dedan Kimathi University of Technology*, Nyeri, 20th -24th July, 2020
20. Pedal Online: Technology for transformative pedagogy, Partnership for Africa Social and Governace research, Virtual workshop February 8th to 28th 2021

PUBLICATIONS

1. Omollo, J. O. and **Ndinya, B. O.**, *Repulsive Coulomb interaction and nuclear charge screening in Helium and Helium-like ions*, Indian. J. Theor. Phys., (2010), Vol. 58, No. 2, pp 81.
2. **Ndinya, B. O.** and Omollo, J. O., *A direct calculation of first-order wave function of Helium*, Commun., Theor., Phys., , (2010), Vol. 54, No. 4, pp. 647 . <https://doi.org/10.1088/0253-6102/54/4/12>
3. **Ndinya, B. O.** and Onyango, S. O., *Analytical absorption cross-section for photon by a Hydrogen 2s atom*, Commun., Theor., Phys.,, (2011) Vol. 55, No. 4, pp 659. <https://doi.org/10.1088/0253-6102/55/4/26>
4. **Ndinya, B. O.**, *Analytical absorption cross-section for photon by a Helium 23S metastable state*, Can. J. Phys., (2012) , 91:85-88, <https://doi.org/10.1139/cjp-2012-0285>
Ndinya, B., Oduor, A. and Omolo, J., *Energy transfer approach in the generation of atomic entangled states*, The African Review of Physics, (2013), 8:0021, pp. 139. <http://aphysrev.ictp.it/index.php/aphysrev/article/viewArticle/697>
5. Omondi George, **Ndinya Boniface** and Baki Paul, *Signatures of low latitude Geomagnetically Induced Currents effects on transformers in Nairobi, Kenya*, Proc. of GIC workshop, Cape Town, April 2014
6. **B. O. Ndinya** and A. Okello, *Thermodynamics Properties of a System with Finite Heavy Mass Nuclei*. American Journal of Modern Physics. Vol. 3, No. 6, 2014, pp. 240-244. <https://doi.org/10.11648/j.ajmp.20140306.16>
7. Omondi George, **Ndinya Boniface** and Baki Paul, *A Study of the Equatorial Ionosphere Over Nairobi during Selected Magnetically Disturbed and Quiet Times for the Year 2009 Using Co-Located Instruments*, International journal of advanced research in physical science (IJARPS), Vol. 1, Issue 6, 2014, pp 18-26
8. **B. O. Ndinya**, F. M. D'ujanga, J. O. Oduogo and A. O. Oduor, *First order expectation values of correlation operators for two-electron atoms*. American Journal of Modern Physics. Vol. 4, No. 2, 2015, pp. 70-74. <https://doi.org/10.11648/j.ajmp.20150402.14>
9. Omondi George Erick, Baki Paul, **Ndinya Boniface**. Quiet Time Geomagnetic Field Variations in the Equatorial East Africa Region during the inclining phase of Solar Cycle 24. *International Journal of Astrophysics and Space Science*. Vol 4, No 2, 2016, pp21-25. <https://doi.org/10.11648/j.ijass.20160402.1>

10. Mumali O.W., Ayodo Y.K., **Ndinya B.O.** & Odhiambo J.O. (2016) Quantum thermodynamics of a strongly interacting bose-fermi mixture in a three-dimensional anharmonic potential, *International Journal of Physics and Mathematical Sciences*, Vol. 6 (2), pp. 41-50
11. Gerald Mugaya Lisamadi, **Boniface Otieno Ndinya**, Joseph Akeyo Omolo. The Test of Entanglement of Polarization States of a Semi-Classical Optical Parametric Oscillator. *American Journal of Modern Physics*. Vol. 6, No. 3, 2017, pp. 37-42. <https://doi.org/10.11648/j.ajmp.20170603.1>
12. Omondi George Erick, Baki Paul, **Ndinya Boniface**. Quiet time correlation between geomagnetic field variations and the Dynamics of the East Africa Equatorial Ionosphere. *International Journal of Astrophysics and Space Science*. Vol 5, No 1, 2017, pp. 6-18. <https://doi.org/10.11648/j.ijass.20170501.12>
13. Michael Nakitare Waswa, Yudah Kennedy Ayodo, Thomas Walikhe Sakwa and **Boniface Ndinya**. Specific heat of doped high-TC Cuprate Superconductor within Bose-Fermi-Hubbard model. *Journal of Multidisciplinary Engineering Science and Technology (JMEST)*. Vol 4, Issue 4, April 2017.
14. Michael Nakitare Waswa, Yudah Kennedy Ayodo, Thomas Walikhe Sakwa, **Boniface Ndinya** and Kibe Horace. Doped Mott insulators within strong coupling regime. *International Journal of Recent Engineering Research and Development (IJRERD)*. Vol 2- issue 07, July 2017
15. D'ujanga, F.M., Lugonvu, G., **Ndinya, B.**, Probing the equatorial ionosphere using spread F signatures and GPS scintillations at Maseno in East Africa, *Advances in Space Research* (2018). <https://doi.org/10.1016/j.asr.2018.06.03>
16. Uluma Edward, **Ndinya Boniface**, Omondi George. Variability of VTEC Gradient and TEC Rate Index Over Kisumu, Kenya During Selected Quiet and Storm Days of 2013 and 2014, *American Journal of Astronomy and Astrophysics*. Vol. 7, No. 4, 2019, pp. 67-72. <https://doi.org/10.11648/j.ajaa.20190704.13>
17. Omondi, G. E., Baki, P. and Ndinya, B. O. (2019). Total electron content and scintillations over Maseno, Kenya, during high solar activity year. *Acta Geophysica*, 67(6), 1661-1670. <https://doi.org/10.1007/s11600-019-00354-7>
18. Igunza Edward Salano, Bonface Ndinya and Rapando Wakhu; Energy And Specific Heat Capacity Of High Tc Superconducting MgB2 In The Two Band Model, *Journal of Multidisciplinary Engineering Science and Technology (JMEST)* ISSN: 2458-9403 Vol. 6 Issue 7, July – 2019
19. Munasi E, Rapando B. W and Ndinya B, Superconducting Parameters of Cuprates Due to Microwave Irradiation In The Framework of The Variational Theory, *Journal of*

Multidisciplinary Engineering Science and Technology (JMEST), ISSN: 2458-9403, Vol. 6 Issue 10, October – 2019

20. Uluma Edward, Ndinya Boniface, Omondi George. SCINDA-GPS derived TEC depletions and amplitude scintillations over Kisumu, Kenya during selected quiet and storm days of 2013 and 2014, Internationals Journal of Advanced Astronomy, 8 (1) (2020) 1-9, <https://doi.org/10.14419/ijaa.v8i1.30232>, May 2020
21. Munasi E, Rapando B. W and Ndinya B, Angular dependence on the d-wave Superconductivity in irradiated Cuprates, International Journal of Research and Analytical Reviews (IJRAR), ISSN 2348-126, Vol 7 Issue 4, November 2020
22. Uluma Edward, Ndinya Boniface, Omondi George. Occurance characteristic of equatorial plasma bubbles over Kisumu, Kenya during Solar Maximum of Solar Cycle 24, Internationals Journal of Advanced Astronomy, 9 (1) (2021) 1-9. <https://doi.org/10.14419/ijaa.v9i1.31262>
23. **Boniface Ndinya**, The electromagnetic field in a rectangular Box: An example of Second quantization. International Journal of Physical Research, 9 (1) (2021) 32-3, <https://doi.org/10.14419/ijpr.v9i1.31392>

SUPERVISIONS

Completed graduate supervision and MSc degree awarded

1. Omondi George, Characterization of Geomagnetically Induced Currents in the power grid in Nairobi, Kenya, **M.Sc thesis**, Maseno University (2013)
2. Oliver Wanyama Mumali, Statistical Thermodynamics of a strongly interacting Bose-fermi System in a three-dimensional Anharmonic potential, **Msc thesis**, Kibabii University (2016)
3. Gerald Mugaya Lisamidi, Quantum entanglement properties of a semi-classical parametric oscillation, **Msc Thesis**, Maseno University (2017)
5. Lugonvu Geoffrey, Comparison of Ionosphere Scintillation during storm and non-storm periods over East Africa Region Using GPS and Ionosonde Data, **MSc thesis**, Makerere University (2018)
7. Samwel Odiwuor Okombo, PG/MSC/0017/2011, Application of factorisation and boost transformation procedure on single field inflationary cosmological perturbations, **MSc thesis**, Maseno University (2019)
8. Igunza Edward Salano, SPH/G/02/15, Statistical Thermodynamics of High T_c Superconductors in two band models, **MSc thesis**, Masinde Muliro University of Science and Technology (2019)
9. Emily Khalenya Munasia, SPH/G/06/15, High temperature superconductivity in irradiated cuprates due to d-wave stimulation, **MSc thesis**, Masinde Muliro University of Science and Technology (2020)

10. Edward Nyongesa Uluma, SPH/G/25/2015, A SCINDA GPS study of Equatorial Plasma Bubbles over Kenya between the years 2013-2014, **MSc Thesis**, Masinde Muliro University of Science and Technology (2020)

Completed graduate supervision and PHD degree awarded

1. Omondi George, Correlation between Geomagnetic field variations and dynamics of the equatorial ionosphere over eastern Africa, **PhD thesis**, Maseno University (2017)
2. Michael Nakitare Waswa, Thermodynamics phase transition in quasi-two dimensional high temperature Cuprate Superconductors within the Bose-Fermi-Hubbard model, **PhD thesis**, Masinde Muliro University of Science and Technology (2018)

Ongoing Graduate Supervision

1. Sylvia Kanguha Osundwa, SPH/G/01-55709/2016, Ab Initio Study of the Effects of Dopant Sc on Mechanical and Electronic Properties of Zinc Oxide, **MSc Ongoing**, Masinde Muliro University of Science and Technology
2. Davis Odhiambo Athwart, SPH/G/01-57280/2017, Monitor Traveling Ionospheric Disturbances (TIDs) over mid-low latitude regions in East Africa, **MSc Ongoing**, Masinde Muliro University of Science and Technology
3. Otimo Solomon, Reformulation of Einstein general theory of relativity in a Euclidean four dimensional space-timeframe, **PhD Ongoing**, Maseno University

THESIS EXAMINATIONS

INTERNAL THESIS EXAMINATION

MSc thesis

- 1) Mulama Austine Amukayia-PG/MSc/040/10, *Optical properties of $Se_{100-x}Bi_x$ thin films deposited on glass substrates by flash evaporation method*, MSc thesis, Maseno University 2015
- 2) Enock Ouma Asino: - PG/MSc/0004/2011, *Climatology of Post-Sunset equatorial Spread-F over the Peuro Maldonado-South America*, MSc thesis, Maseno University 2015
- 3) Otimo Solomon: - SPH/G/12/012, *Quantum Phase transition; Intra and inter-band interaction on D-wave superconductivity*, MSc thesis. MMUST 2017
- 4) Alphayo Abacha Ocholla: - SPH/G/40/12, *Energy and Transition Temperature of Induced Superconductivity: The Proximity Effect*, MSc thesis. MMUST 2018
- 5) Otimo Solomon: - SPH/G/12/012 en "Quantum Phase transition; Intra and inter-band interaction on D-wave superconductivity"

PHD THESIS

- 1) George Odhiambo Onyinge:-PG/PHD/0050/2010, Modeling and testing of an indirect forced convection cabinet solar dryer for thin layer drying of *Rastrineobola Argentea* fish under the climatic conditions of Maseno, Kenya, **PhD** thesis. Maseno University 2015
- 2) Henry Odhiambo Otunga: - PG/PHD/00034/2008, A Computational Study of the Structural, Electronic, Optical, Vibration and Thermal properties of Germanium-Antimony-Telluride (GST), **PhD** thesis. Maseno University 2015
- 3) Horace Kibe Eyinda: - SPH/H/04/15, "**C-F Interaction, Spin exchange and thermodynamic for S-Wave and P-Wave Heavy Fermions Superconductors**", **PhD** thesis. MMUST 2018

EXTERNAL THESIS EXAMINATION

- 1) Elicah N. Wabululu: - SPH/G/05/09, Quasiperiodic behavior of a perturbed Neutron-Proton pair, MSc thesis. MMUST 2013
- 2) Jophine Silako Namwetako: - SPH/G/02/010, Thermodynamic of incommensurate Quantum crystal, MSc thesis. MMUST 2013
- 3) Mark Ndombi Koinange: - SPH/G/33/12, Magnetism in a lattice of spinor Bose-Einstein condensates, MSc thesis. MMUST 2013
- 4) Murila Musungu: - SPH/G/09/010, Phase shift and energy gap for nuclear systems with large Neutron excess, MSc thesis. MMUST 2015
- 5) Gedion Akou Osamong, Synthesis and Characterization of Copper Doped Magnesium Nickel Ferrite Nanoparticle, MSc thesis, Chuka University 2019
- 6) Oketch Fredrick Omboga, Theoretical study of effects of applied uniaxial stress, spatial dielectric function and temperature gradient on photoionization cross section of hydrogenic donor impurity and non-hydrogenic donor impurity in cylindrical and rectangular quantum well dots, PhD thesis, Pwani University 2019
- 7) Jane Kathure Mbae, Structural and Electronic properties of Magnesium and Calcium doped Titanium and Zirconium Dioxide for water treatment, MSc thesis, Chuka University (2021)
- 8) Peter Oduogo, The cooling effects of air on flat plate solar collector, MSc thesis, Maseno University (2021)
- 9) Patrick Muga Owiny, Photo Anti-bunching properties of the Anti-Jaynes-Cummings model, MSc thesis, Maseno University (2021)
- 10) Bernard Wechuli Wakhu, Positron impact elastic scattering using first order distorted wave Born approximation with a complex potential, MSc thesis, Kenyatta University (2022)

REFEREES

Boniface Ndinya Curriculum Vitae 2022

1. Prof. Joseph Akeyo. Email ojakeyo04@yahoo.co.uk; Mob. No. 0721347418
2. Prof. Andrew Oduor. Email andrewoduor22@yahoo.co.uk; Mob. No. 0722334179
3. Prof. Paul Baki. Email paulbaki@gmail.com; Mob. No. 0734524066