

GEOFFREY O. OKENG'O, Ph.D., MPSK



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LINKEDIN PROFILE:

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DATE OF BIRTH: 17th April 1984

MARITAL STATUS: Married with 3 children

LANGUAGES: English (Fluent), French (Basic), Kiswahili (Fluent) **CAREER:** Physicist

ABOUT MYSELF

I am an all-rounded, engaging, result-oriented, energetic, dynamic, highly knowledgeable, multidisciplinary and internationally exposed physicist and scientist with a proven track record and experience in achieving any targeted results. I'm a great team player who is highly skilled in scientific analysis, out-of-the box thinking and critical thinking. I possess outstanding organizational and problem solving skills able to take on and succeed in tackling challenging problems.

CAREER OBJECTIVE

To become a distinguished professor and expert in educational & scientific policy making, best teaching practice, innovative teaching and the sociology & politics of science education and technology.

ACADEMIC POSITIONS, LEADERSHIP RESPONSIBILITIES & COMPETENCIES

- **October, 2022 - To date:** *Founder and Principal Investigator*, the African Universities Academic MOOCs Network, involving seven (6) universities from East, South and West Africa.
- **January 2021 - To date:** *Knowledge Officer & Executive Member*, African Union GMES & Africa Academic Network (GAAN).
- **August 2021- September 2022:** *Coordinator, Bachelor of Science (Education) & Bachelor of ICT (Education) programmes*, Kenya Science Campus, University of Nairobi.
- **September 2015 - To date:** *Chairman, Departmental Postgraduate & Guest Seminars*, Department of Physics, University of Nairobi.

- **September 2019 – To date:** *Thematic Head & Group Leader*, Astrophysics, Space Science & Applied Physics Research Group, Department of Physics, University of Nairobi.
- **May 2021 – To date:** *President & Executive Member*, The East African Astronomical Society (EAAS), a professional society that covers Kenya, Uganda, Tanzania, Rwanda, Burundi and Ethiopia.
- **2015 – To date:** *Member*, Department of Physics Postgraduate Studies Committee
- **2019 – To date:** *Founder, Convener & Coordinator*, **The Scientific Computing Academy**, Faculty of Science and Technology, University of Nairobi.
- **2016 – To date:** *Coordinator*, 4th Year B.Sc. undergraduate research projects
- **2015 – To date:** *Member*, Departmental Curriculum Review Committee
- **2015 – To date:** *Member*, Departmental Academic Board
- **2015 – To date:** *Member*, Faculty of Science & Technology Academic Board
- **2016 – To date:** *Member*, Faculty of Science & Technology Environmental Committee
- **2015 – To date:** *Patron*, University of Nairobi Astrophysics and Space Science Students Association
- **2019:** *Initiator & Supervisor*, First University Rocket Design & Launch project
- **2016 – To date:** *Coordinator*, Departmental High Schools Physics & Astronomy Outreach.
- **2017 – To date:** *National Lead Judge (Technology)*, Kenya Secondary Schools Educational Fair (KSEF), Ministry of Education, Science & Technology.
- **2018 – To date:** *National Judge (Science & Technology)*, The Kenyan Golden Climate Olympiad, an Annual Competition involving over 50 countries, The Light International School & Academy, Nairobi.
- **2018 – 2020:** *Consultant Astrophysicist*, The DreamMaker Travels, Texas, US.

ACADEMIC QUALIFICATIONS

- **2018 & 2019:** *Certificates in Pedagogy and Andragogy*, Center for Pedagogical Studies, Faculty of Education, University of Nairobi.
- **2012 – 2015:** *Doctor of Philosophy (PhD) in Physics (Cosmology)*, University of the Western Cape, Cape Town, South Africa.
- **2009 – 2011:** *Master of Science (MSc) in Physics (Astrophysics) **Cum Laude***, University of the Western Cape, Cape Town, South Africa.
- **Jan. 2008 – Dec. 2008:** *Honors in Astrophysics & Space Science*, University of Cape Town, South Africa.
- **2003 – 2007:** *B.Sc. Honors (Physics)*, University of Nairobi, Kenya.
- **2009:** *Certificate in Communicating Astronomy with the public*, South African Astronomical Observatory (SAAO), Cape Town, South Africa
- **2014:** *Certificate in Fundamental Physics & its Applications* (African School of Fundamental Physics 2014, ASP), University of Cheick Anta Diop, Dakar, Senegal

INTERNATIONAL EXPOSURE & EXPERIENCE

- **2015 – To date:** *Executive Member*, East African Astronomical Society
- **Jan. 2015 – June 2015:** *Visiting postdoctoral fellow for six months*, The Inter-university Centre for Astronomy & Astrophysics (IUCAA), delivered cosmology public lecture & participated in astronomy outreach.
- **2012 – 2014:** *Physics & Lab experiments Tutor*, Department of Physics and Astronomy, University of the Western Cape, Cape Town, South Africa.
- **Jan. 2009: – Dec. 2009:** *Honors Electrodynamics Tutor*, Department of Pure & Applied Mathematics, University of Cape Town, South Africa.
- **Jan. 2010 – Dec. 2010:** *Tutor & Laboratory demonstrator*, Department of Physics & Astronomy, University of the Western Cape, Cape Town, South Africa.
- **2010:** *Guest MSc student, Ecole Normale Superiure France*, working with Professor Isabelle Baraffe as part of MSc thesis research under co-supervision with Dr. Enrico Olivier from the South African Astronomical Observatory, Cape Town, South Africa.
- **2008:** *Part-time Senior A-Level Physics & Mathematics Tutor*, The International Schools of Cape Town and Houts Bay – **Taught in Senior A-Level Cambridge system.**

OUTSTANDING ACHIEVEMENTS

- **2021-2022:** Performance appraisal rating of **“Exemplary”** (Score: **97%**).
- **2019-2021:** Performance appraisal rating of **“Exemplary”** (Score: **96%**).
- **2015 – 2018:** Performance appraisal rating of **“Exceeds Expectations”** (Score: **85%**).
- **2015 – 2016:** Lead in the revision and overhaul of the undergraduate BSc curriculum for Physics and Astronomy & Astrophysics degree specializations.
- **Nov. 2017 – To date:** Member, National Square Kilometer Array (SKA) Technical Steering Committee, under the National Commission for Science Technology and Innovation (NACOSTI), driving the efforts to build the Kenyan Node of the SKA.
- **2017 - To date:** Coordinator, Department of Physics Seminars – revived departmental research & guest seminars - have organized several seminars involving postgraduate students, departmental staff, local and international guests.
- **2016 – To date:** Coordinator, Fourth year undergraduate BSc Physics and Astronomy & Astrophysics research projects in the department.
- **2018 – To date:** Thematic Head, Astronomy & Astrophysics – Involved in students’ mentorship, guidance and counseling. I provide leadership in all matters related to astrophysics and space science in the department.
- **2018 - 2019:** Presiding Officer, University of Nairobi Students Association (UNSA) elections – presided over the students’ elections ensuring utmost honesty, transparency and integrity of the entire voting, tallying and announcement of the results.
- **July 2019 -** National Judge in Physical Sciences, The Young Scientists Kenya (YSK) national organization whose patron is the President of the Republic of Kenya and chairman is the Permanent Secretary, Ministry of Education, Science & Technology.

- o **2018 – To date:** National Judge, Kenya Science Educational Trade Fair (KSEF), a National competition of Kenyan Secondary Schools Science, Technology and Innovation Exhibits under the Ministry of Education, Science & Technology.
- o **2018 - To date:** National Judge, The Golden Climate Olympiad, an international competition involving more than 30 different countries across the world geared towards promoting science, technology and innovations that address issues of climate change and green energy technologies.
- o **2018 – To date:** International Consultant & Astrophysics Expert at The Dream Maker Travels Company Ltd based in Texas, US, working with the MD Mr. Gregory Patrick.
- o **2017 – To date:** Collaborator & Organizer, Annual Academic Trips for Physics & Astrophysics practicals at The Luigi Broglio Space Centre, a national satellite tracking & telemetry station located in Malindi, Kenya.
- o **2017 – to date:** Founder & Coordinator, The Scientific Computing Academy.
- o **2017 – 2018: Developed a Concept Note for establishment of a** Centre for Big Data Analytics & Applications (CESBA) at the University of Nairobi in collaboration with colleagues from the School of Computing & Informatics and School of Mathematics. The concept note is awaiting University Senate approval.
- o **2014 – To date:** Supervised **OVER 30** BSc Physics undergraduate students, **FIFTEEN (15)** MSc students to completion and currently supervising **SIX (6)** MSc students and **THREE (3)** PhD students.

TEACHING PHILOSOPHY

I believe in **six essential elements that promote conducive and successful learning**, that:

1. All students are unique and must be accorded a suitable balanced learning environment where they can grow physically, mentally, emotionally, socially and academically.
2. A professor's role is to guide, inspire, stimulate, provoke learning and instill critical thinking in the students. I accord my students with a stimulating learning environment that makes this possible.
3. Students must be allowed to think freely and have access to engaging and creative hands-on activities and exercises.
4. Students must be allowed room to make choices and let their curiosity direct their learning.
5. Students must be given the opportunity to practice acquired skills in a safe and conducive environment.
6. Technology is an essential tool that must be incorporated and used to assist in the learning process. I'm a champion of digital and online learning, with an interest in developing a unique, efficient, highly effective & integrated learning platform that will transform the learning process through leveraging on existing online e-tools and e-technologies.

WORK EXPERIENCE

AUG. 2019– TO DATE

SENIOR LECTURER/ASSISTANT PROFESSOR, DEPARTMENT OF PHYSICS, UNIVERSITY OF NAIROBI

Lecturing physics and astrophysics courses at undergraduate and postgraduate level. Carrying out postgraduate students' supervision, Research, Consultancy - mathematical modeling, curriculum development in physics and astrophysics. The graduate level courses taught include: *Mathematical Physics, Electrodynamics, Quantum Mechanics, Relativity, Stellar Astrophysics, Cosmology and Galaxies*.

DEC. 2015 – JUL. 2019

LECTURER, DEPARTMENT OF PHYSICS, UNIVERSITY OF NAIROBI

Lecturing physics and astrophysics courses to undergraduate and beginning graduate students. Research and students research projects supervision. Consultancy - mathematical modeling, curriculum development, physics and astrophysics. The courses taught include: *Mathematical Physics, Electrodynamics, Quantum Mechanics, Relativity, Stellar Astrophysics, Cosmology and Galaxies*.

FEB. 2015 – MAY 2015

VISITING POSTDOCTORAL FELLOWSHIP, INTER-UNIVERSITY CENTER FOR ASTRONOMY AND ASTROPHYSICS, PUNE, INDIA

- I worked with Professor Kandaswamy Subramanian and Associate Professor Sanjit Mitra on the following areas of their research:
 - Cosmic Magnetism
 - Gravitational Waves detection using LIGO-India
 - CMB temperature fluctuations and polarization
- I gave a public seminar on my PhD thesis work titled “*Modeling Structure formation with interacting fluids*”. I also worked with the head of Science Outreach Mr. Samir Dhurde in conducting schools' public outreach and science awareness.

MAY 2016 – TO DATE

FOUNDER & COORDINATOR, THE SCIENTIFIC COMPUTING ACADEMY, DEPARTMENT OF PHYSICS, UNIVERSITY OF NAIROBI

Designing, coordinating and administering short courses and lectures on scientific computing, targeted at graduate students, junior researchers and researchers from government, industry and the private sector. The Scientific Computing Academy (SCA) aims at providing unique, hands-on, practical problem-oriented training in order to alleviate an existing skills gap at the interface of computer science and applied sciences.

DEC. 2015 – TO DATE

MEMBER & THEMATIC HEAD (ASTROPHYSICS), CURRICULUM REVIEW COMMITTEE, DEPARTMENT OF PHYSICS, UNIVERSITY OF NAIROBI

Conducted an overhaul of the B.Sc. (Astrophysics) undergraduate curriculum launched in 2009, by introducing new, modern and relevant courses that allow students to major in space science, radio astronomy, astrodynamics, space technology, aerodynamics, remote sensing and space systems design and programming.

DEC. 2015 – TO DATE

MEMBER, NATIONAL SQUARE KILOMETER ARRAY STEERING COMMITTEE, NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION, MINISTRY OF HIGHER EDUCATION, KENYA

Active member of the national technical steering committee tasked with developing a framework for building the first ever radio astronomy observatory at Mt. Longonot Kenya, which will be part of the African Very Long Baseline Interferometry (AVLBI) and the Square Kilometer Array (SKA) phase II.

FEB. 2012 – NOV. 2015

TUTORIAL FELLOW, DEPARTMENT OF PHYSICS, UNIVERSITY OF NAIROBI

Lecturing Physics and Astronomy undergraduate courses, undergraduate student projects supervision and consultancy.

OCT. 2010 – JAN. 2012

GRADUATE ASSISTANT, DEPARTMENT OF PHYSICS, UNIVERSITY OF NAIROBI

Lecturing Physics and Astronomy undergraduate courses, undergraduate student projects supervision and consultancy.

JAN. 2009 – DEC. 2009

TUTOR, ELECTRODYNAMICS AND ASTROPHYSICS, DEPARTMENT OF MATHS & APPLIED MATHEMATICS, UNIVERSITY OF CAPE TOWN, SOUTH AFRICA

Tutor for electrodynamics and astrophysics honors courses at the National Astrophysics and Space Science Programme (NASSP), University of Cape Town, South Africa.

JUN. 2008 – JULY 2009

TUTOR, SENIOR A-LEVEL PHYSICS & MATHEMATICS, INTERNATIONAL SCHOOLS OF CAPE TOWN AND HOUT BAY, CAPE TOWN, SOUTH AFRICA

Appointed Senior A-Level Mathematics and Physics tutor, prepared students for the Cambridge Senior A-Level examination.

JAN. 2002 – JUL. 2007

HIGH SCHOOL TEACHER, PHYSICS, MATHEMATICS AND CHEMISTRY, VARIOUS SECONDARY SCHOOLS, KISII & NAIROBI, KENYA

Teacher in High School Physics, Mathematics and Chemistry before joining university and during all university vacations and breaks.

COURSES TAKEN & PASSED

Done and passed the following courses at different levels:

A. BSC PHYSICS

- Basic and advanced calculus (Calculus I, II & III)
- Basic and advanced geometry (Geometry I, II & III)
- Linear algebra (I & II)
- Probability and statistics (I & II)
- Real analysis
- Basic and advanced mathematical physics (I, II, III & IV)
- Mechanics (I & II)
- Statistical physics
- Nuclear physics
- Atomic physics
- Basic and advanced electrodynamics (EM Theory I & II)
- Elementary particle physics
- Computational physics
- Introductory & Digital electronics
- Quantum mechanics (I & II)
- Classical mechanics
- Astrophysics

B. HONORS

- General Astrophysics I (Stellar Astrophysics)
- General Astrophysics II (Extragalactic Astrophysics)
- Introduction to General Relativity
- Observational Techniques I (Optical & Infrared astronomy)
- Observational Techniques II (Radio Astronomy)

- Computational Methods in Astronomy
- Computational Physics
- Classical Electrodynamics
- Astrophysical Fluid Mechanics
- Spectroscopy

C. MSC PHYSICS

- Plasma Physics
- Astrophysical Fluid Mechanics
- Galaxies and Cosmology
- Extragalactic Astronomy
- Advanced General Relativity
- Hot Topics in Cosmology.

PERSONAL SKILLS & ATTRIBUTES

- Exemplary oral presentation, communication and writing skills
- Good computational, analytical and mathematical modelling skills.
- Proven leadership and organization skills.
- Teamwork, loyalty and positive attitude towards work and colleagues
- Stress management and adaptability skills.

HONORS AND AWARDS RECEIVED

- SKA Grant to attend the Annual Square Kilometer Array (SKA) Annual Bursary Conference, Port Elizabeth, South Africa 26th – 30th November, 2018.
- SKA Grant to attend the Annual Square Kilometer Array (SKA) Annual Bursary Conference, Cape Town, South Africa 27 November to 1 December 2017.
- SKA Grant to attend the Annual Square Kilometer Array (SKA) Annual Bursary Conference, Cape Town, South Africa 28 November to 2 December 2016.
- IAU Grant to attend the IAU 29th General Assembly August 3-14, 2015, Honolulu, Hawaii USA.
- IAU Grant to attend the IAU 29th General Assembly August 3-14, 2015, Honolulu, Hawaii USA.
- IAU (OAD)- IUCAA Visiting Fellowship, February- May 2015.
- African School of Fundamental Physics and its Applications (ASP 2014)- Certificate.
- SKA South Africa Doctoral Fellowship, 2012.
- SKA South Africa Masters Fellowship, 2009-2010.
- Brightest Young Minds (BYM) South Africa, 2009.
- Best Postgraduate Presentation Award, UCT 2009.

- Certificate in Communicating Astronomy with the public, SAAO 2009 - Certificate.

POST-GRADUATE STUDENTS SUPERVISION

I have supervised **ELEVEN (11) M.Sc.** students to completion, currently supervising **eight (4) M.Sc.** students and **three (4) PhD** students:

A. COMPLETED:

1. **Ms. Rita Mwende** – M.Sc. – I56/20130/2019, Solar PV energy systems prediction, forecasting and Modelling, **Completed, 2021.**
2. **Mr. Yoves Munala** – M.Sc. h– I56/11395/2018, A Study and Modelling of PV systems underwater energy generation, **Completed, 2021.**
3. **Mr. Jacob Kennedy Owuor** – Msc – *Characterization of Ionospheric Scintillation Intensity Using GPS Receivers at Low Latitudes.* **Completed, 2021.**
4. **Ms. Dorothy Museo** – Msc – *Solar Variability and Earth's Climate Change: Is there a Link?* **Completed, 2021.**
5. **Mr. Douglas Manasi** – Msc – *Understanding the Dynamics and Evolution of a Positively Curved Universe,* **Completed, 2021.**
6. **Mr Cabdulaahi Tarbiici** – Msc – Beyond the Standard Cosmological Model: Structure formation in interacting dark energy models, **Completed, 2021.**
7. **Mr Mutunga Samson** - M.Sc., thesis title: “*Testing the Copernican Cosmological Principle with Astronomical Observations*”- **Completed - Graduated, Sept. 2017.**
8. **Mr Peter Jairous Banda** - M.Sc. - I56/89604/2016, thesis title: “*A Study of Hydroxyl (OH) Maser Variability in NGC 6334 F*” - **Completed, December 2018.**
9. **Mr Amos Kipkosgei Chepkwony** - M.Sc. - S56/73613/2014, thesis title: “*Environmental Radiation Dose Rate Assessment in the Gold Mining Region of Lolgorian, Narok County, Kenya*” - **Completed, Graduated September 2018.**
10. **Mr Jephther Ongige Ondieki** - MSc - S56/78901/2015, thesis title: “*Mapping Radioactive Minerals Using Remote Sensing: A Case Study of Mrima Hills, Kitui County, Kenya*” - **Completed, Graduated in Sept. 2019.**
11. **Ms. Lynda Wamwere** - Msc -S56/5961/2017, *Environmental Impact Assessment of Heavy Metals from Kilimapesa Hill Gold Mines in Lolgorien, Narok County-* **Completed,** Expected to Graduate in Sept. 2019.
12. **Mr. Minjire Kaguamba Minjire-** Msc -S56/5961/2017, *Environmental Impact Assessment of Heavy Metals from Kilimapesa Hill Gold Mines in Lolgorien, Narok County-* **Completed,** Expected to Graduate in Sept. 2019.
13. **Mr. Nasio Cleophas Taula-** Msc -S56/5961/2017, *Environmental Impact Assessment of Heavy Metals from Kilimapesa Hill Gold Mines in Lolgorien, Narok County-* **Completed,** Expected to Graduate in Sept. 2019.

B. ON-GOING

C. M.Sc.

1. **Mr Mwanja Jonathan Muthenya** - M.Sc. - S56/60181/2013, thesis title: “*Assessment of Radioactive Management Systems in Kenya*” -Ongoing.
2. **Mr. Charlton Samo**- Msc, *Is Our Solar System Stable? Probing The Chaotic Motion Of The Three Outermost Solar System Planets: Jupiter, Saturn And Uranus.* (Ongoing)
3. **Mr. Bernard Makori**, Msc., *Integrable Differential Equations from Quantum Field Hypothesis.* (Ongoing)
4. **Ms. Lilian Mutia**- Msc -S56/5961/2017, *Environmental Impact Assessment of Heavy Metals from Kilimapesa Hill Gold Mines in Lolgorien, Narok County*- **Completed**, Expected to Graduate in Sept. 2019.

D. PhD. (Ongoing)

1. **Ms. Dorothy Museo Mwanzia**, PhD, Topic: *Understanding of Young Low-mass Stars in Galactic Star-forming Regions.* (Ongoing)
2. **Ms. Mavyline K. Motari**, PhD, Topic: *Designing, Thermal Modelling And Parametric Analysis Of An Improved Automatic Sun Tracking And Self-Cleaning Solar Panel For Sustainable Green Energy Generation.* (Ongoing)
3. **Mr. Manasi Douglas Omurwa**- Topic: *Probing the Origin of Under Luminous Radio Relics.* (Ongoing)
4. **Mr. Kaguamba Minjire Kaguamba**- Topic: *Solar Variability and Earth's Climate Change: Is there a Link?* (Ongoing)

POSTGRADUATE THESIS EXAMINATION

No.	Names	Title of Thesis	Level	Month/Year of Examination
1.	Wambugu Kahuthu	Effect of Hermanson's Spatial Dielectric Function on the total energy of cubic quantum dots and frequency dependent dielectric functions in binary semi-conductors	PhD.	December, 2019
2.	Roger Wambugu Ndichu – Department of Meteorology University of Nairobi	Assessment of the influence of astronomical indicators on the skill of forecasting rainfall in East Africa.	M.Sc..	September, 2019

3.	Peter Jairous Banda- Department of Physics, – University of Nairobi	A study of Hydroxyl (OH) Maser Variability in NGC 6334I	M.Sc.	November, 2018
4.	Samson Mutunga Mulandi, Department of Physics, University of Nairobi	Testing the Copernican Cosmological Principle with Astronomical Observations.	M.Sc.	July, 2017
5.	F. E Ndaba -Department of Physics, North West University South Africa	NGC 5819 Distance Using Kepler Pelta Scuti Stars.	M.Sc.	February, 2018

POST-GRADUATE & UNDERGRADUATE COURSES TAUGHT

I have **12 years of university** teaching experience, **seven (7)** of which I have taught at postgraduate level.

The courses that I have taught are as follows:

A. Undergraduate

(i) Physics

- SPH 309 - Quantum Mechanics I
- SPH 405 - Electrodynamics II
- SPH 409 - Quantum Mechanics II
- SPH 420 - Physics Projects

(ii) Astronomy & Astrophysics

- SPA 101 - Introduction to Astronomy
- SPA 203 - Light and Astronomical Optics
- SPA 301 - The Distant Stars
- SPA 302 - Evolution of Stars
- SPA 303 - Galaxies and the Universe
- SPA 401 - Properties and Physics of Stars
- SPA 405 - Introduction to General Relativity and Cosmology
- SPA 406 - Astronomy Projects

B. Postgraduate

- SPH 639: Relativity
- SPH 603 - Quantum Mechanics I
- SPH 632 - Advanced Laboratory Techniques
- SPH 635 - Computational Physics
- SPH 601 – Classical Mechanics

- SPH 636 - Quantum Mechanics II
- SPH 638: Space Plasma Physics

REFEREED JOURNAL AND CONFERENCE PUBLICATIONS

- 1.
2. **G.O. Okeng'o**, J.O. Malo, J.B. Awuor, R.O. Genga, *Testing structure formation in the universe via coupled matter fluids*, RJS - Vol 1, No 1 (2016) pp. 57-68. ISSN: 2305-2678.
3. **Okeng'o G. O.** and Awuor J. B., *On the Complexification of Minkowskian Spacetime*, AJPS 2 (2015) 73-76. ISSN 2313-3317.
4. **Okeng'o G. O.** and Malo J. O., *A Simplified Formalism for Computing Growth Rates for Perturbations in Standard Cosmology*, A. Review of Physics,10:0028. 2015;10 (2015) (ISSN 2223-6589):205-207.
5. S. M. Mutunga, **G. O. Okeng'o** and C. O. Mito, *On testing the Copernican principle- Modelling the CMB temperature angular power spectrum*, KJS Series A Vol. 17 No. 1 (2019).
6. **Okeng'o G. O.**, *Imprints of a late-time interaction in vacuum dark energy models*, AJPS Vol 3 (2019). ISSN: 2313-3317
7. **Okeng'o G. O.** and Gikuiyu T. N., *An Assessment of Dangers to Life on Earth from Potentially Dangerous Asteroids (PDAs) And Need for Adequate Technological Preparedness*, KJS (2019) (accepted).
8. **Okeng'o G. O.**, *Interacting Vacuum Dark Energy*, KJS (2019) (accepted)
9. Baki, P., Obure, C. O. and **Okeng'o, G. O.**, *Techniques for Merging Cultural Aspects of Astronomy with Scientific Observations* (2012) African Skies, Vol. 16, p.13.
10. **G. O. Okeng'o.**, *“Bridging the Gender Gap: Why do Very Few Girls Study STEM? A University Lecturer’s Perspective”*. First Regional Workshop on Gender Equity in STEM 28th - 29th November 2019 held at the University of Nairobi Towers.
11. D. Museo & **G. O. Okeng'o.**, *“Solar Variability and Earth’s Climate Change: Is there a Link?”* TWAS-SAREP Regional Young Scientists Conference 23rd – 25th October 2019 held at the Nairobi Safari Club.
12. **G. O. Okeng'o.**, *“The Dark Universe”*. Research Week 2019 Conference: Advancing Science to Inform Sustainable Development 23rd – 25th October 2019 held at the CBPS, University of Nairobi.
13. Kimani J. M. & **Okeng'o G. O.**, *“Towards Attainment of Data Democracy in Achieving Food Security & Universal Healthcare Through Adoption of Cost-Effective Nanosatellite Programs in Africa”*. Scientific Revival Day of Africa Celebrations 2019- The Kenya National Academy of Sciences, The Nairobi Safari Club – 4th July 2019.

14. **Okeng'o G. O.** “*Indigenous Knowledge and Science- Complementary Systems*”, Oral Paper Kenya National Academy of Science (KNAS), Scientific Day of Africa Celebrations 2015, Proceedings of the KNAS, 2015
15. **Okeng'o G. O.**, and Gikuiyu T. N. “*An Evaluation of the Potentially Dangerous Asteroids and Need for Adequate Technological Preparedness*”, Conference Oral Paper presented at the 4th Kenya Annual Science and Innovation Week, University of Nairobi, 11th – 15th May, 2015.
16. **Okeng'o G. O.**, “*Structure formation with two interacting matter fluids*”, Conference Oral Paper presented at the 4th East African Astronomy Workshop, University of Rwanda, Kigali, Rwanda, June 30th-July 4th, 2014.
17. **Okeng'o G. O.**, *Modelling the growth of large-scale structure with interacting fluids*, PhD Thesis, University of the Western Cape, South Africa- Supervised by Prof Roy Maartens Square Kilometer Array Research Chair in Cosmology, Department of Science and Technology, South Africa.
18. **Okeng'o G. O.**, “*A Theoretical Study of Stellar Pulsations in Young Brown Dwarfs*”, M.Sc. Cum Laude Thesis, University of the Western Cape 2011, published online at <http://etd.uwc.ac.za/usrfiles/modules/etd/docs/>
19. **Okeng'o G. O.**, “*Calibration of a 22 GHZ Radio Receiver on the 26 m Hartebeesthoek Radio Telescope*”, NASSP Honors Thesis (2008), University of Cape Town.
20. **Okeng'o G. O.**, “*Testing Dark Energy with HI Surveys*”, Annual SKA Postgraduate Conference poster paper, 2012.

RECENT CONFERENCES & MEETINGS ATTENDED

1. The 4th national science week 2019, Between 6th – 9th August 2019, The Kenyatta International Convention Centre (KICC).
2. The “*Innovation Summit 2019*”, 13-14 June 2019, Chandaria Auditorium, University of Nairobi Towers.
3. The “*DARA Dish Conversion Workshop*”, 21-25 January 2018, Accra, Ghana.
4. The “*Grant Proposal Writing Training Workshop*”, 17 - 18 Jan. 2018, Chiromo Conference Centre, CBPS.
5. The “*12th Annual Square Kilometer Array Bursary Conference*” 27th November - 1st December 2017, The Strand Tower Hotel, Cape Town, South Africa.
6. The “*11th Annual Square Kilometer Array Bursary Conference*” 28th November - 2nd December 2016, Fire and Ice Protea Hotel, Cape Town, South Africa.
7. The “*10th Annual Square Kilometer Array Bursary Conference*” 30th November - 3rd December 2015, The Stellenbosch Institute for Advanced Studies (STIAS), Stellenbosch, South Africa.
8. The *Kenya National Science, Technology and Innovation Week* 11th -15th May 2015 hosted by the Ministry of Science and Technology, Kenya.
9. *Training Programme in Astronomy for African Scientists*, April 20 - May 01, 2015, The Inter-University Center for Astronomy and Astrophysics (IUCAA), Pune, India.

10. The *9th Annual Square Kilometer Array Bursary Conference*, 04-08 December 2014, Stellenbosch Institute for Advanced Studies, Stellenbosch University, Cape Town, South Africa.
11. *African School of Fundamental Physics and its Applications*, Cheikh Anta Diop, Dakar University, Senegal, August 3rd to 23rd, 2014.
12. The *Fourth East African Astronomy workshop*, University of Rwanda, June 30th to July 04, 2014, Kigali, Rwanda.

INTERNATIONAL & RENOWN GUESTS I HAVE INVITED TO GIVE SEMINARS AT THE DEPARTMENT OF PHYSICS

To date, I have invited the following international guests and organized for them to give seminars at the Department of Physics, University of Nairobi:

1. **HE Hon. Dr. Wilber Ottichillo**, Governor Vihiga County
2. **Dr. Nooraji Jiwaji**, Open University of Tanzania
3. **Dr David Buckley**, South African Astronomical Observatory
4. **Dr Vanessa McBride**, Office of Astronomy for Development & SAAO
5. **Dr. Jessamyn Fairfield (PhD)** - Researcher in Nano-materials & Neuromorphic Devices, National University of Ireland, Galway.
6. **Dr. Claudia Fracchiolla (PhD)** - Research Associate in Physics Education, National University of Ireland, Galway
7. **Dr. Rose Mutiso (PhD)** - Energy Researcher & CEO, MVawazo Institute, Nairobi- Kenya.
8. **Mr Willis Obonyo** - PhD student in Astrophysics, University of Leeds, UK.
9. **Mr Eric Kamau and Mr James Chege** - Msc students in Astrophysics at RATT, Rhodes University, South Africa.
10. **Prof. Gernot Groemer** - Astronaut, Astronomer & President of the Austrian Space Society.
11. **Dr. Riturpano Goswami** - Senior Lecturer, Gravity Research Group, University of Kwazulu Natal, South Africa.
12. **Dr. Anne Marie Nzioki** - Lecturer, Gravity Research Group, University of Kwazulu Natal, South Africa.
13. **Dr. Althea Wilkinson** - Astronomer, University of Manchester, UK.
14. **Dr. Pheneas Nkundabakura** - Lecturer, University of Rwanda, Kigali, Rwanda.
15. **Prof. Catherine M. Cress** - Principal Scientist at the Centre for High Performance Computing (CHPC) & Extra-Ordinary Professor of Physics, University of the Western Cape, South Africa.
16. **Dr. Sean February** - Research Scientist, Centre for High Performance Computing (CHPC), Cape Town, South Africa.

OUTREACH ACTIVITIES & INITIATIVES

Over the last one year, I have organized and facilitated the following outreach activities at the Department of Physics:

- Invited pupils, teachers and parents from The Oaks Academy, Nairobi for a Public Lecture and Public Sky Viewing at the Department of Physics, University of Nairobi.
- Together with some students from the department, I visited and gave general physics and astronomy talks at the following schools:
 - Braeburn Schools
 - Mukumu girls High School, Kakamega.
 - The Visa Oshwal Academy -
 - The Visa Oshwal Primary School -
 - Pangani Girls High School
 - State House Girls High School
 - The Nairobi School

SCHOLARSHIPS FOR STUDENTS

Using my international contacts and collaboration, I have managed to secure scholarships for the following students to pursue Msc & PhD abroad:

1. **Eric Kamau** - PhD student in RATT, Rhodes University, South Africa - Jan. 2019
2. **James Chege** - PhD student, Curtin University, Australia - Jan. 2019
3. **Ms. Lexy Andati** - Msc student in RATT, Rhodes University, South Africa - Jan. 2018
4. **Mr. Carringtone Kinyanjui**- Msc student, University of Manchester, UK – Oct. 2019
5. **Ms. Anne Njeri Ng'endo** – PhD student, University of Leeds, UK – July 2018.
6. **Ms. Vivian Atieno** – Msc student University of Leeds, UK, beginning Oct. 2019.

STUDENTS PRACTICALS EQUIPMENT

I acquired a donation for 2 Yagi Antennas from Prof. Peter Wilkinson of the University of Manchester, that are currently under use for radio astronomy undergraduate practicals.

PROFESSIONAL ORGANIZATIONS MEMBERSHIP

- Member, The East African Astronomical Society (EAAS)
- Member, The African Astronomical Society (AfAS)
- Member, The East Africa Association for Radiation Protection (EAARP)
- Member, Physics Society of Kenya (PSK).

OTHER ACTIVITIES

- **2017 - to date:** Founder & Member, Matutu Adventist Schools Alumni Association (AAMAS).

- **2016 - to date:** Patron, University of Nairobi Astronomy and Space Science Students Association (UNASSA)
- **2014 - to date:** Scientific writer and blogger: <http://kenyan-astrophysicist.blogspot.com/>
- **2018 – 2019:** Secretary, Chiromo Campus Faculty Club.

HOBBIES

Soccer, Yoga, safari, music and non-technical writing.

REFEREES

1. Prof. Leonidah K. Omosa, Dean, School of Physical Sciences, College of Biological & Physical Sciences, University of Nairobi. Email: lkerubo@uonbi.ac.ke ; **Phone no:** +254721797175.
2. Prof. Riewa O. Genga, Thematic Head, Theoretical Physics & Professor of Physics, Department of Physics, University of Nairobi Kenya. **Email:** rgenga@uonbi.ac.ke ; **Phone no:** +254733495467.
3. Prof Francis W. Nyongesa, Chairman Department of Physics & Associate Professor of Solid-State Physics, Department of Physics, University of Nairobi. **Email:** fnyongesa@uonbi.ac.ke; **Phone no:** 0721742930.
4. Prof. Samson O. Gunga, Professor of Philosophy of Education, Faculty of Education, University of Nairobi. **Email:** samsongunga@uonbi.ac.ke ; **Phone:** +254722610869.
5. Prof. Stephen Wanyonyi Luketero, Chairman Department of Mathematics, Faculty of Science and Technology, University of Nairobi. **Email:** sluketero@uonbi.ac.ke; **Phone:** +254722882684.