

CURRICULUM VITAE

REUBEN YAO TAMAKLOE: BSc(Hons), PGDE, MSc., PhD.

Position: *Associate Professor and coordinator for Postgraduate programmes in the Department of Physics.*

PERSONAL PARTICULARS

NAME: **REUBEN YAO TAMAKLOE**
PROFESSION: **Lecturer**
POSITION: **Associate Professor**
NATIONALITY: **Ghanaian**
DATE OF BIRTH: **5th March, 1964**
RELIGION: **ECKANKAR: The Path of Spiritual Freedom.**
MARITAL STATUS: **Married with four (4) children**
ADDRESS: **Department of Physics – College of Science
Kwame Nkrumah University of Science and Technology
PMB-KNUST Kumasi, Ghana.**
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E-MAIL: **rionty@gmail.com, rytamakloe.cos@knust.edu.gh**
LANGUAGES: **English, Ewe, Ga.**

UNIVERSITIES ATTENDED AND ACADEMIC DEGREES EARNED

2003 – 2007: Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana, PhD. (Solid State Physics)
1999 – 2002: Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana, MSc. (Physics)
1994 - 1997: University of Cape Coast, Ghana, P.G.D.E (Sandwich):
1989 – 1991: Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana, BSc. (Physics)

TRAINING CERTIFICATES

- 4rd DAN Black Belt: Ghana Taekwondo Asso. March, 2016 Kumasi
- AdminTelecom Training (Telecommunication) July, 2011 Accra
- 1st KNUST Summer School August, 2011 KNUST
- 4th KNUST Summer School Workshop August, 2014 KNUST
- 6th KNUST Summer School Workshop August, 2016 KNUST
- 8th KNUST Summer School Workshop August, 2018 KNUST

1984 – 1986: Winneba Secondary School; G. C. E. A – Level

1979 – 1984: Kaneshie Sec/Tech – KATECO, Kaneshie, Accra; G. C. E. O – Level

TEACHING & RESEARCH EXPERIENCES

MSc. Level

PHY 559 Statistical Physics	Physics Dept.	2009 – 2015
PHY 555 Theory of Field	Physics Dept.	2010 – 2015
PHY 556 Electronics Instrumentation & Measurement	Physics Dept.	2014 - date

BSc. Level

PHY 453 Statistical Mechanics	Physics Dept	2015 – date
PHY 474 Telecommunication Physics	Physics Dept	2015 – date
PHY 482 Ceramics & Composites	Physics Dept	2017 – date
PHY 373/374 Programming with Web Application	Physics Dept	2014 – date
PHY 375 Computer Hardware & Repairs	Physics Dept	2004 - 2011
PHY 157 / 158 Experimental Physics	Physics Dept.	2009 – 2014
PHY 261 / 262 Programming with C/C++ I & II	Physics Dept	2011 – 2016
CSM 153 Circuit Theory	Physics Dept.	2008 – 2014
PHY 256/396 Electromagnetic Theories	Physics Dept	2008 – date
PHY 382 Electronics Instrumentation	Physics Dept	2010 – date
PHY 261 / 262 Programming With Pascal I & II	Physics Dept.	2007 – 2011
PHY 357 & 358 Programming With C++ I & II	Physics Dept.	2003 – 2007
Computer Hardware Components I & II	Physics Dept.	2003 – 2011
Facilitate Programming Principles 2A– RMIT/AVU		
Degree in Computer Science	KVCIT	2005 – 2007
Facilitate Hardware – RMIT/AVU Diploma in Computer Science	KVCIT	2004 – 2007
Facilitate Hardware Technician, Network Admin, Computer Literacy and C++ Programming Language.	AVU/ KVCIT	1999 – 2010
PHY 373 Programming with Web Applications I & II	Physics Dept.	2014 – date

SUPERVISED PROJECTS

PhD

Field Performance evaluation of solar photovoltaic module under various installations and ambient conditions	Ongoing
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MSc/MPhil

An Assessment Of Strategies Implemented To Enhance Performance of Selected Senior High Schools In Ashanti Region	IDL	2011 - 2012
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Feasibility study of Electricity production from beer
brewery wastewater using Single-Chamber Microbial
Fuel Cell (MFCs): Case study of Guinness Ghana
Breweries Limited (GGBL), Kumasi.

Physics Dept. 2013 - 2014

BSc Physics

Three BSc. Final year projects per year

2010 to date

DETAILS OF RESEARCH UNDERTAKEN

Key Research areas: 1) Renewable Energy Sources

- 2) Fuel Cells
- 3) Education

1. Design and Construction of a GSM Based Voting System
2. Production of Power from wastewater
3. Electricity Generation by Single- and Double Chamber Membrane-Less Microbial Fuel Cells (MLMFCs)
4. Effect of Chemical Oxygen Demand, COD on open-circuit-voltage, OCV on Power Production
5. Use of hydrogen peroxide (H_2O_2) as substitute for ferricyanide and permanganate as catholyte in Double Chamber MFCs
6. Using Mfensi clay as Ion-Exchange-Partition in MFCs and treatment of wastewater.

RESEARCH VISIT

Visiting Researcher: **Prof. C. Linkous / Dr. Reuben Y. Tamakloe; Youngstown State University, YSU - USA**, 31st May to 14th August, 2010. The purpose of the research was to consider going beyond ultrapure hydrogen and feeding a number of gaseous feedstock in the SOFC. One possible feedstock considered was a landfill gas. Typical landfill gas can be approximated as a 1:1 mixture of methane and carbon dioxide, with a large number of subsidiary components at the 1% level and below. A number of subtasks were started during the summer 2010 visit and was to be completed in 2011, but still on-going by Linkous.

BOOK CHAPTER

Reuben Y. Tamakloe, *PEM-Less Microbial Fuel Cells*. A chapter in Proton Exchange Membrane Fuel Cell (InTechOpen) - <http://dx.doi.org/10.5772/intechopen.71479>

PATENT

The Microbial Fuel Rechargeable Battery, filed at the Registrar General, Accra, on the

13th May, 2015.

LIST OF PUBLICATIONS RESULTING FROM RESEARCH

1. **Tamakloe R. Y.**, Donkor M. K. E. Singh K. K., Fabrication and Study of Power- Output of Multi-Chamber Microbial Fuel Cells (MFCS) With Clay as Ion Exchange Partition. *European Scientific Journal* October 2017 edition Vol.13, No.30 ISSN: 1857 – 7881 (Print) e - ISSN 1857- 7431
2. **Tamakloe, R.Y.**, Commey, M., Obed, A. N., Turkson, S. K., Singh, K. Effect of Porosity on OCV And Waste Water Treatment Efficiency of a Clay Partitioned Ion-Exchange Double-Chamber Microbial Fuel Cell. *International Journal of Advanced Research in Engineering and Technology (IJARET)*, Volume 6, Issue 05, (May 2015)
3. **Tamakloe, R. Y.**, Effect of COD and H₂O₂ concentration on DC-MFC. (Received 24 February 2014, Accepted 21 April 2015, Available online 9 May 2015-Elsevier <http://dx.doi.org/10.1016/j.renene.2015.04.046>)
4. **Tamakloe, R. Y.**, Agamasu, H. and Larry-Salifu, A. Comparative study of Double Chamber Microbial Fuel Cells (DC-MFCs) using Mfensi clay as Ion-Exchange-Partition: Effect of Electrodes. (Accepted – by *African Journal of Science, Technology, Innovation and Development (AJSTID)*)
5. **Tamakloe, R. Y.**, Opoku-Donkor, T., Donkor, M. E., Agamasu, H., Comparative study of Double Chamber Microbial Fuel Cells (DC-MFCs) using Mfensi clay as Ion-Exchange-Partition: Effect of Pot Size. *International Journal of Technical Research and Applications* e-ISSN: 2320-8163, www.ijtra.com Volume 3, Issue 2 (Mar-Apr 2015), PP. 126-128
6. **Tamakloe, R. Y.**, Agamasu, H. and Singh, K., Power generation by double chamber membrane-less Microbial fuel cells (MLMFCS). *International Journal of Advanced Research in Engineering and Technology (IJARET)*, Volume 5, Issue 7, July (2014), pp. 30-38. ISSN 0976 – 6480 (Print), ISSN 0976 – 6499(Online).
7. **Tamakloe, R. Y.**, Opoku-Donkor, T. and Singh, K., H₂O₂ as Electron Acceptor In Double Chamber Microbial Fuel Cells, *International Journal of Advanced Research in*

Engineering and Technology (IJARET), Volume 5, Issue 1, January (2014), pp. 01-06.
ISSN 0976 – 6480(Print), ISSN 0976 – 6499(Online)

8. Opoku-Donkor, **T.**, **Tamakloe, R. Y.**, Nkum R. K. and Singh, K., “Effect of COD on OCV, Power Production and Coulombic Efficiency of Single-Chambered Microbial Fuel Cells”, *International Journal of Advanced Research in Engineering & Technology (IJARET)*, Volume 4, Issue 7, 2013, pp. 198 - 206, ISSN Print: 0976-6480, ISSN Online: 0976-6499.
9. **Tamakloe R. Y.** and Singh K. Electricity Generation by Single- and Double Chamber Membrane-Less Microbial Fuel Cells (MLMFCs)- *Journal of the Ghana Science Association, Volume 15 No. 1, 2013, pp 84-91* . ISSN: 0855-3823
(<http://www.ajol.info/index.php/jgsa/article/view/106200>)
10. **Tamakloe, R. Y.**, Singh, K. and Linkous, C. A. Operating Characteristics of Proton-Exchange-Membrane (PEM) Fuel Cells. *European Journal of Scientific Research*. Vol. 20 No. 2 (2008), pp. 397-405, 2008.
11. **Tamakloe, R. Y.** and Singh, K. Photovoltaic - Stand-Alone Hydrogen System *European Journal of Scientific Research*. Vol. 20 No. 2 (2008), pp. 384-396, 2008.
12. **Tamakloe, R. Y.** Fabrication and Testing of A PEM Fuel Cell for the Production of Electricity Using Solar Hydrogen. Abstract: *Ghana Science Association Journal*, 2005
13. **Tamakloe, R. Y.** Numerical Simulation and Design of Stand-alone Hydrogen System. Pub: *World Renewable Energy Congress VII. Preliminary Program* pp.109-OMT21, 2002.
14. **Tamakloe, R. Y.** and Singh, K Power Output of Al/SnO₂/n-Si Solar Cell, *Solar Energy* Vol. 4, pp. 343-348, 1996.

CONFERENCES/SEMINARS AND WORKSHOPS

1. **Tamakloe R. Y.** and Singh K. Electricity Generation by Single- and Double Chamber Membrane-Less Microbial Fuel Cells (MLMFCs) – 3rd One-Day Research Seminar: Oral and Poster Presentations, 16th April, 2014.
2. **Tamakloe, R. Y.**, Agamasu, H. and Larry-Salifu, A. Performance of Porous Pot as ion exchange partition for MFC. ANSOLE Regional Meeting in West Africa (ARMWA 2014), 25-26 April 2014.

3. **Tamakloe, R. Y.**, Amanor C., Ntim-Donkoh K G. Design and Construction of a GSM Based Voting System, Ghana Science Association 28th Biennial Conference, UG, 15th – 19th July 2013.
4. **Tamakloe, R.**, The Challenges of Garbage Management in our Schools. *Ghana Association of Science Teachers (GAST) Manual – 55th Annual General Meeting /Conference/ workshop*, September 9-14, 2013, p. 50 – 58.
5. **Participant:** PHYSWARE: A collaborative workshop on Low-cost equipment and appropriate technologies that promote undergraduate level, Hands-on physics education throughout the developing world. ICTP programme co-sponsored by IUPAP and UNESCO. Miramare, Trieste – Italy. 16 – 27 February, 2009.
6. **Tamakloe, R. Y.** and Aggrey-Smith, S. (2008). Challenges of e-learning Design and Production. IDL Capacity Building Workshop. January, 2008.
7. **Tamakloe, R. Y. (2007)**. Photoproduction of Hydrogen, Design, Operation and Performance of integrated PV-H₂ Stand-alone Power Systems. Poster presented at the 32nd international Nathiagali Summer College on Physics and Contemporary Needs. Pakistan, June 2007.
8. **Tamakloe, R. Y. (2006)**. Photoproduction of Hydrogen, Design, Operation and Performance of Integrated PV-H₂ Stand-Alone Power Systems. College of Science Research Retreat, Busua Beach. July, 2006
9. **R. Y. Tamakloe** 1st International Conference In Engineering, Science, Technology And Entrepreneurship (ESTE 2015), 5th – 7th August, 2015
Theme: “promotion of creativity and innovation through engineering, science, technology and entrepreneurship
10. **R. Y. Tamakloe, M. E. K. Donkor, Students.** Problem Based Learning: The Physics Approach. 1st Regional Conference on Problem Based Learning (PBL) and E-Learning THEME: Problem Based Learning (PBL) and E-Learning in 'Developing' Countries: the Perspectives and Approach. 30 Nov - 02 Dec, 2015 Venue: IDL conference centre, KNUST- Kumasi”

LIST OF OTHER PUBLICATIONS

1. Researched into Fabrication and Testing of PEM Fuel Cell for the Production of Electricity Using Solar Hydrogen, 2006, PhD Thesis.
2. Researched into Production of Solar Hydrogen using stand-alone Photovoltaic systems, 2002, MSc Thesis.
3. Researched into the fabrication of Solar Cells using Vapour Deposition Method, 1991,

BSc Thesis.

4. Research into Microbial Fuel Cells – ongoing.

EMPLOYMENT HISTORY

1. Associate Professor: Department of Physics – College of Science; to date.
2. Senior Lecturer: Department of Physics – College of Science; (2008-2016).
11. Lecturer at the Kumasi Virtual Centre for Information Technology (KVCIT - IDL) - KNUST, Kumasi, from 2002 to 2010.
12. Additional responsibilities: System Administrator (KVCIT - IDL), Part-time Lecturer at the Department of Physics. 2002 to 2010.

EXPERIENCES, SERVICES & ACTIVITIES

1. I had a Part-time training in computer Hardware -which includes Installation, Application Packages, repairs of the computers and its peripherals and Network. 1998 to 1999
2. I also trained in software such as DOS and Windows, at the Global Computer Training Center, Teshie-Nungua Estate (August 1998 to May 1999).
3. I also had a Part-time training concurrently in Computer Installation, Servicing, Network, UNIX, C++ Programming Language and DBM (Access) under Mr. D. Hagan (Head CSD-Bank of Ghana from October, 1998 to June, 1999 with practical attachment at the BOG. Since then I have been working privately and officially on computer related problems.
4. As a Post Graduate student I served as course facilitator for C/C++ Programming Language and Computer Literacy (i.e. Windows and Microsoft Office) at African Virtual University (AVU) of KNUST, Kumasi. In the same capacity I served as a Hardware Technician. This work involves servicing/troubleshooting all computers at the KVCIT in the computer literacy Lab and IDL as a whole.
5. Appointment as a Facilitator for the 8th KNUST Summer School. 20th -24th August, 2018.
6. Appointment as Co-opted Member: Committee to write Curriculum for the B.Ed Programme. April – September, 2018.
7. Appointment as a Member: Committee to write Curriculum Strand for the B.Ed Programme. January – March, 2018.
8. A judge at the maiden On-campus event HULT PRIZE@KNUST. Friday, November 17, 2017.
9. Building Stronger Universities Workshop on Problem Based Learning and E-Learning [26 – 28th August, 2015], IPO-PBL Project, KNUST. “Building Stronger Universities in Developing Countries” BSU

10. Invitation to Network Meeting Practice Partnerships With Africa Relation In Ghana, 6th - 11th September 2015. National Council for Tertiary Education supported by Deutscher Akademischer Austausch Dienst, DAAD (German Academic Exchange Service) Towards a Ghana-Germany Partnership on the Conversion of Polytechnics to Technical Universities.

11. Africa Regional Conference And Exhibition: Celebration of The International Year of Light and Light- Based Technologies (IYL 2015)

THEME: Harnessing Light and Light-based Technologies for Africa's Development at Accra International Conference Centre (AICC) 14th – 16th September, 2015, Accra International Conference Centre

SERVICES TO THE UNIVERSITY AND NATION

1. Field Trip with students to Paderborn Germany: 20th June to 2nd July, 2018.
2. Field Trip with students to Paderborn Germany: 16th to 26th July, 2017
3. Field Trip with students to Paderborn Germany: 20th to 28th July, 2016
4. Exchange Programme: Start-Up Factory in collaboration with Kumasi-Paderborn Visit German students and faculty in Accra, Cape Coast, and Kumasi from Nov, 6th until Nov 14th, 2015
5. Exchange Programme: Start-Up Factory in collaboration with Kumasi-Paderborn 8th to 16th August, 2015
6. Start-Up collaboration between Department of Physics and Paderborn University,
7. Coordinator: Solar Traffic Lights Project on KNUST campus
8. Member: Committee to Spearhead Exhibition Of KNUST Science Innovative Products At The 3rd National Science, Technology And Innovation (STI) Fair. 14th – 16th Sept, 2016.
9. Project coordinator: contract for the supply and installation of traffic lights on UCC campus. September, 2016.
10. Organiser And Resource Person: Science, Entrepreneurship, Innovation And Creativity (Scinnova Seminar), Thursday, 12th October 2017
11. Member: Committee to develop solar street light on campus as pilot project. Invitation by Pro-VC. Completed 2 and they are still working.
12. Building Stronger Universities Workshop on Problem Based; Learning and E-Learning 26 – 28th August, 2015

HOBBIES AND OTHER INTERESTS

1. SPORTS (Athletics, Martial Art);
2. Carpentry;
3. Welding;
4. Repairs of computers and School Lab Equipment /Improvisation and
5. Fabrication of Electronic Devices.

MEMBERSHIP OF PROFESSIONAL BODIES

1. University Teachers Association of Ghana (UTAG)
2. Ghana National Association of Teachers (GNAT) – 1992 to 2002
3. Ghana National Association of Science Teachers (GAST) – 1994 to date
4. Ghana Institute of Information Technology (GIIT) – 1998 to 2003
5. Energy Research Group (ERG), Ghana – 2000 to date
6. Ghana Science Association (GSA) – 2002 to date
7. Member, Institute of Physics (IOP), Ghana – 2012 to date

APPOINTMENT/POST HELD

- | | | |
|----------------------------------------------------|-------------|---------------------------|
| • Academic Tutor – Physics | | 2011 to Date |
| • Kumasi Virtual Centre for Information Technology | HOD | Oct, 2005 - Sept, 2007 |
| • Kumasi Virtual Centre for Information Technology | HOD | Oct, 2007 - Sept, 2008 |
| • Income Generation/ Physics Workshop Committee | Chairman | 5 th Oct, 2011 |
| • Exhibitions/TRATECH Committee (Physics) | Chairman | 5 th Oct, 2011 |
| • General Physics Lab 1&2 | Coordinator | 5 th Oct. 2011 |
| • General Physics Lab IV | Coordinator | 5 th Oct. 2011 |
| • Graduate Programme Committee | Member | 5 th Oct. 2011 |
| • Departmental Research Committee | Member | 5 th Oct. 2011 |
| • Academic Tutor – Physics | | 2010 -2011 |
| • Unity Hall Council | Member | 2012 – 2014 |
| • Unity Hall – Floor Tutor | 1B | 2013 |

ON-GOING PROJECT

- Microbial Fuel Cells.
- Community Impact project: Solar Traffic light.
- Mini-Hydro Power using wastewater.
- Solar-powered Street Lights.

INTERNATIONAL COLLABORATION

12. Start-Up Factory project: in collaboration with the University of Paderborn.
13. Start-Up Factory Project: Field Trip to Paderborn, Germany with students; 16th July to 26th July, 2017
14. Start-Up Factory Project: Field Trip to Paderborn, Germany with students; 16th July to 26th July, 2017
15. Start-Up Factory Project: Field Trip to Paderborn, Germany with students; 20th July to 27th July, 2016
16. Start-Up Factory Project funded by DAAD participate in the preparatory work from 8th to 18th August, 2015.

REFEREES:

1. Emeritus Prof. K. Singh
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KNUST
Tel: 050 618 4930
Email: **keshaw.singh@gmail.com**
2. Prof. L. K. Amekudzi
HOD, Department of Physics – COS
KNUST
Tel: 020 184 2237
Email: **leonard.amekudzi@gmail.com**
3. Prof. K. Preko
Dean, Faculty of Physical and Computational Science (FPCS)
KNUST
Tel: 024 202 6899
Email: **kpreko@yahoo.com**

Prof. R Y TAMAKLOE