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 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
MSc/MPhil		
An Assessment Of Strategies Implemented To Enhance Performance of Selected Senior High Schools In Ashanti Region	IDL	2011 - 2012
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

- Design and Construction of a GSM Based Voting System
- Production of Power from wastewater
- Electricity Generation by Single- and Double Chamber Membrane-Less Microbial Fuel Cells (MLMFCs)
- Effect of Chemical Oxygen Demand, COD on open-circuit-voltage, OCV on Power Production
- Use of hydrogen peroxide (H_2O_2) as substitute for ferricyanide and permanganate as catholyte in Double Chamber MFCs
- 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

- **Tamakloe** R. Y., Donkor M. K. E. SinghK. 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

- **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)

- **Tamakloe, R. Y**., Effect of COD and H_2O_2 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)*

- **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))*

- **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

- **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).

- **Tamakloe, R. Y.,** Opoku-Donkor, T. and Singh, K., H_2O_2 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)

- 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.

- **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)*

- **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.
- **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.
- **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
- **Tamakloe, R. Y.** Numerical Simulation and Design of Stand-alone Hydrogen System. Pub: *World Renewable Energy Congress VII. Preliminary Program* pp.109-OMT21, 2002.
- **Tamakloe, R. Y**. and Singh, K Power Output of Al/SnO_2 /n-Si Solar Cell, *Solar Energy* Vol. 4, pp. 343-348, 1996.

CONFERENCES/SEMINARS AND WORKSHOPS

- **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.

- **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.

- **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.

- **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.

- **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.

- **Tamakloe, R. Y.** and Aggrey-Smith, S. (2008). Challenges of e-learning Design and Production. IDL Capacity Building Workshop. January, 2008.
- **Tamakloe, R. Y. (2007).** Photoproduction of Hydrogen, Design, Operation and Performance of integrated PV-H_2 Stand-alone Power Systems. Poster presented at the 32nd international Nathiagali Summer College on Physics and Contemporary Needs. Pakistan, June 2007.
- **Tamakloe**, R. Y. (2006). Photoproduction of Hydrogen, Design, Operation and Performance of Integrated PV-H_2 Stand-Alone Power Systems. College of Science Research Retreat, Busua Beach. July, 2006

- **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

- **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 ALL OTHER PUBLICATIONS

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

EMPLOYMENT HISTORY

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

EXPERIENCES, SERVICES & ACTIVITIES

- 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
- I also trained in software such as DOS and Windows, at the Global Computer Training Center, Teshie-Nungua Estate (August 1998 to May 1999).
- 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.
- 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.
- Appointment as a Facilitator for the 8th KNUST Summer School. 20th -24th August, 2018.
- Appointment as Co-opted Member: Committee to write Curriculum for the B.Ed Programme. April – September, 2018.
- Appointment as a Member: Committee to write Curriculum Strand for the B.Ed Programme. January – March, 2018.
- A judge at the maiden On-campus event HULT PRIZE@KNUST. Friday, November 17, 2017.
- 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

- 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.

- 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

- Coordinator: Solar Traffic Lights Project on KNUST campus
- Member: Committee to Spearhead Exhibition Of KNUST Science Innovative Products At The 3rd National Science, Technology And Innovation (STI) Fair. 14th – 16th Sept, 2016.
- Project coordinator: contract for the supply and installation of traffic lights on UCC campus. September, 2016.
- Organiser And Resource Person: Science, Entrepreneurship, Innovation And Creativity (Scinnova Seminar), Thursday, 12th October 2017
- Member: Committee to develop solar street light on campus as pilot project. Invitation by Pro-VC. Completed 2 and they are still working.
- 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	5th Oct, 2011
• Exhibitions/TRATECH Committee (Physics)	Chairman	5th Oct, 2011
• General Physics Lab 1&2	Coordinator	5th Oct. 2011
• General Physics Lab IV	Coordinator	5th Oct. 2011
• Graduate Programme Committee	Member	5th Oct. 2011
• Departmental Research Committee	Member	5th 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

- Start-Up Factory project: in collaboration with the University of Paderborn.
- Start-Up Factory Project: Field Trip to Paderborn, Germany with students; 16th July to 26th July, 2017

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

REFEREES:

1. Emeritus Prof. K. Singh
   Department of Physics – COS
   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**

Dr. R Y TAMAKLOE