



PROFESSOR O.U. OPARAKU, FSES, MIEEE, MNSE, MISES, MNMS

DATE OF BIRTH: September 6, 1956

CURRENT POSTAL ADDRESSES, E-mail and Telephone

Office Address: Department of Electronic Engineering
University of Nigeria,
Nsukka,
Enugu State, Nigeria

Permanent Home Address: Umuezerokam Umuoma Nekede, Owerri
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EDUCATIONAL INSTITUTIONS ATTENDED WITH DATES

| <u>INSTITUTIONS</u> | <u>DATES</u> | <u>CERTIFICATE</u> |
|---|---------------------|---------------------------|
| University of Northumbria Newcastle Upon Tyne (Formerly, Newcastle Upon Tyne Polytechnic) United Kingdom. | 1985 – 1988 | Ph.D |
| University of Nigeria, Nsukka | 1975 – 1980 | B.Eng. |
| Government Sec. School, Afikpo | 1971 – 1975 | WASC |

ACADEMIC/PROFESSIONAL QUALIFICATIONS

| | <u>DATES</u> |
|--|---------------------|
| Registered Engineer(COREN) - R. 7531 | 1999 |
| Doctor of Philosophy(Thesis: Fabrication, Characterisation and Stability Studies on InP Solar Cells) | 1988 |
| Bachelor of Engineering(Electrical/Electronic Engineering) Second Class Honours(Upper Division) | 1980 |

West African School Certificate(Distinction)

1975

MEMBERSHIP OF PROFESSIONAL BODIES/ASSOCIATIONS

- (i) Nigerian Society of Engineers (Member) -- NO. 5348 (NSE)
- (ii) Institution of Electrical and Electronic Engineers (member) (IEEE)
- (iii) **Solar Energy Society of Nigeria (Fellow)** (SESN)
- (iv) International Solar Energy Society (Member) (ISES)
- (v) Nigerian Meteorological Society (Member) (NMS)

PREVIOUS EMPLOYMENT

1. General Electric Company Special Projects Engineer 1982 - 1983
(Telecommunications) Nigeria Ltd.
(G.E.C. Tel. Ltd) 26 Creek Road,
Apapa, Lagos

G.E.C. Tel. Ltd Maintenance Engineer 1981-1982
2. West African Examination Electrical Engineer
Council, Lagos (National Youth Service) 1980-1981

PRESENT EMPLOYMENT

| <u>EMPLOYER</u> | <u>STATUS</u> | <u>DATES</u> |
|---|----------------------|---------------------|
| *Electronic Engineering(ECE) /National Centre for Energy Research and Development (NCERD) University of Nigeria, Nsukka | Professor | 2003 - |
| * Electronic Engineering | Head of Department | 2011- 2014 |
| NCERD | Director | 2004 – 2009 |
| ECE/NCERD | Senior RF/Lecturer | 1993 – 2003 |
| ECE/NCERD | RF 1/Lecturer I | 1990-1993 |
| ECE/NCERD | RF II/Lecturer II | 1988-1990 |
| ECE/NCERD | Graduate Assistant | 1983-1988 |

LIST OF MAJOR PUBLICATIONS

1. **N.M Pearsall, C. Goodbody, O.U. Oparaku, A.A Dollery, R. Hill**, *Effect of Isotropic proton irradiation on the performance of ITO/InP Solar Cells*. Proc. Of the 20th IEEE PV Conf. P. 898-902, Las Vegas, U.S.A, (1988).
2. **O.U. Oparaku**, *The Role of Photovoltaics in the new information age. The Developing Countries Perspective*. Proc. of the Int. Conf. on “Developing Countries and the New Information Age” Nsukka, Nigeria, P. 176 - 182 (1989)
3. **O.U.Oparaku, N.M. Pearsall, R. Hill**. *Potential of ITO/InP Solar Cells for Space Applications*. Nig. J.of Solar Energy, Vol.8, p. 243-249 (1989)
4. **O.U. Oparaku, C.L Dargan, N.M. Pearsall, R. Hill** (1990)
Characterization of Zn/Au back contacts to low-doped P-InP. J. Semiconductor Sci. & Tech. P.65-69 (1990)
5. **O.U. Oparaku, N.M Pearsall, R.Hill**, *Terrestrial stability of ITO/InP Solar Cells*. Nigerian J. Solar Energy, Vol. 9, p 78-84 (1990)
6. **O.U. Oparaku, O.C. Iloeje**. *Design considerations for a PV water pumping facility for a rural village near Nsukka, Nigeria* Nig. J. of Solar Energy, Vol. 10,p. 64 -9 (1990)
7. **O.C. Iloeje, D.C. Onyejekwe, O.U. Oparaku, S.O.Enibe, C. Nwanunobi, N. Okubuiké, J.Ogbudimkpa**: *National Energy Survey Report*: Submitted to the Energy Commission of Nigeria, Lagos (1991)
8. **O.U. Oparaku**, *Electrical Energy for Rural Development- The PV Solar Energy Option* Nig. J. of Solar Energy, Vol. 12, p. 93-102 (1993)
9. **O.U. Oparaku** *Towards a National Photovoltaics Program*. Nig. J. of Solar Energy, Vol. 12.p. 66-73 (1993)
10. **T.C. Madueme, I.N. Iwuagwu, O.U. Oparaku**. *Nigeria and Renewable Energy Resources: The Journey So Far*: Proceedings of the International Workshop on Power Systems Operation and Planning, Lagos, Nigeria. P. 224 - 7 (Jan. 1995).
11. **A. Esan, A.T Atiku, O.U. Oparaku, J.O Ojosu, C. Ani, H.N. Yahaya**; *Training Manual on Photovoltaic Systems Maintenance and Installation in Nigeria*. Published by the Energy Commission of Nigeria (1997)

12. **S.O. Onyegegbu, D.C. Onyejekwe, O.U. Oparaku, S.O. Enibe, O.V. Ekechukwu, R.U. Osuji, G.O. Unachukwu;** *Report on the Environmental Benefits of using Renewable Energy Resources in Nigeria*; Submitted to the UNESCO Regional Office, Kenya (1997)
13. **O.U. Oparaku** *Photovoltaic Systems*: Contributed to the Renewable Energy Training Manual Published by the Energy Commission of Nigeria, (1998)
14. **O.U Oparaku, C.L Dargan;** *Surface Morphology of ion-implanted P-InP System*: Nig. J. Physics. Vol. 11, P. 56-59 (1999)
15. **O.U. Oparaku,** *Potential of Photovoltaic systems for reliable power supply in Nigeria*. Proc. of the Int. Conference on Power Systems Planning and Control, Accra Ghana. P. 270 - 273 (2000).
16. **O.U. Oparaku,** *Solar –PV Systems for Distributed Power Supply and their Viability*: Proc. of the National Workshop on the Promotion of Business and Industrial Activities in Solar Photovoltaic Power Systems in Nigeria, p. 96-109 (2000).
17. **O.U.Oparaku** *Experiences with Photovoltaic Systems for Village and Office Electrification in Nigeria*. Proc. of the 17th European Photovoltaic Solar Energy Conference held in Munich, Germany PP. 2072 - 2075 (October 2001).
18. **O.U. Oparaku ,** *Assessment of the Cost-Effectiveness of Photovoltaic Systems for Telecommunications in Nigeria*; Int. Journal of Solar Energy, Vol. 22 (3-4), p. 123-129 (2002)
19. **O.U.Oparaku;** *Photovoltaic Systems for Distributed Power Supply in Nigeria*: Renewable Energy Journal, 25,p. 31-40 (2002)
20. **O.U.Oparaku, J.O Ogbuagu:** *Photovoltaic Technologies- Advances and Prospects*: Nigerian Journal of Tropical Engineering, Vol. 3, No.1,P.18-34 (2002)
21. **O.U.Oparaku,** *Rural Area Power Supply in Nigeria: A cost comparison of the Photovoltaic, diesel/gasoline generator and grid utility options*; Renewable Energy Journal 28, 2089-2098 (2003)
22. **O.U. Oparaku,** *Techno-Economic Analysis of Fourteen Diesel-Generator Operated Water Pumping Stations in Rural Nigeria*, J. of Science and Technology Research Vol. 2,No.2, 2003, p.78-83
23. **O.U.Oparaku, B.C. Eze,** *Computer –Aided Analysis of the Performance of Diesel Generator Power Systems used for Water Pumping*; Global Journal of Engineering Research, Vol. 2 No. 1 & 2, p. 23-34 (2003)

24. **O.U.Oparaku**, *Design Criteria of Solar Water Pumping Systems for Agricultural Production*, Nigerian Journal of Solar Energy, Vol. 14 P 62-65(2003).
25. **P.E. Ugwuoke, O.U.Oparaku, C.E. Okeke**; *Ampere-Hour method of Sizing Stand-Alone PV Systems*;_ Global Journal of Pure and Applied Sciences, Vol. 9, No.4, P. 581-589 (2003)
26. **P.E.Ugwuoke, O.U. Oparaku, C.E. Okeke**; *_Computer –Aided Analysis of 7k WP Stand-Alone PV System for a Hypothetical Household Application at Remote Location in Nsukka*; Nigerian Journal of Solar Energy, Vol. 14, P. (2003).
27. **O.U.Oparaku, B.F. Aniekwu**; *Solar Photovoltaic System for Cathodic Protection of Pipelines in Nsukka, Nigeria*; Nigerian Journal of Renewable Energy, Vol.12, Numbers 1&2, pg 52-56 (2003).
28. **P.E. Ugwuoke, O.U.Oparaku**, *Comparative Life Cycle Analysis of Solar Photovoltaic Power System for Remote Residential Applications* Global Journal of Engineering Research, Vol. 3, No. 1, P. 9 - 15 (2004).
29. **O.U. Oparaku**; *Dissemination of PV Systems in Nigeria: Current Status, Barriers and Future Prospects*; 21st European Photovoltaics Conference, Proceedings,Barcelona Spain, (6 – 10 June, 2005) pg 147.150.
30. **J. Wansah, O.U. Oparaku, C.E. Okeke**; *Application of Photovoltaics Modules for Pipeline Corrosion Control: The Environmental Implications*; 21st European PV Conference Proceedings, Barcelona Spain, 6 – 10 (June, 2005) Pg 279-281
31. **P.E.Ugwuoke, F. I. Ezema, O. U. Oparaku & C.E. Okeke**, “*Effect of Temperature Variation on the Performance of Polycrystalline Silicon Photovoltaic Modules in a Tropical Climate*,” (Accepted for Publication in the Journal of Scientific and Industrial Studies - 2006
32. **S.N. Agbo, O.U. Oparaku** (2006) *Positive and Future Prospects of Solar Water Heating in Nigeria*, (Pacific Journal of Science and Technology, Vol. 7, No. 2, P. 191-198 (November 2006).
33. **O.U. Oparaku** (2006), *Solar Photovoltaic in the Deregulated Electricity Industry of Developing Countries*. Published in the Proceeding of International Conference. of Renewabe Energy for Developing Countries, Washington DC, USA, (April 2006)

34. **J.F. Wansah, O.U. Oparaku, C.E. Okeke** (2006), *The Economics of Cathodic Protection of oil pipelines in the Niger Delta*, Nigeria Journal of Solar Energy, Vol. 16. PP. 126-133.
35. **A.U. Ofoefule, G.O. Unachukwu, O.U. Oparaku** (2006), *Comparative Performance Evaluation of Charcoal Cookstove*, Nigerian Journal of Solar Energy, Vol. 16, pp.187-194.
36. **E.O. Uzodinma, J.I. Eze, O.U. Oparaku** (2006), *Performance Evaluation Test of Cylindrical Clay Woodstove*, Nigerian Journal of Solar Energy, Vol. 16, pp. 200-205
37. **I.O. Obi, J.F. Wansah, O.U. Oparaku** (2006), *Modification in the Use of Photovoltaic Modules in the Cathodic Protection of Pipeline in Nsukka and Riverine Areas in Nigeria*, Nigerian Journal of Solar Energy, Vol. 16, pp. 218-224
38. **Ofoefule A.U, Unachukwu G.O and Oparaku O.U.** (2006). Comparative Performance Evaluation of Charcoal Cookstoves. Nig. J. Solar Energy. Vol. 16, 187-194.
39. **E. C. Okoroigwe, C. N. Anyanwu and O. U. Oparaku.** Status of Biomass Gasification Technology in Nigeria. *International Workshop on Renewable Energy for Sustainable Development in Africa, University of Nigeria Nsukka; July 29th – August 1st, 2007; pg 132-136.*
40. **P. E. Ugwuoke Ezema F.I., Oparaku O.U. and Okeke C. E.** 2007 Effect of Temperature Variation on the performance of Polycrystalline Silicon Photovoltaic modules in a tropical climate International Journal of physical Sciences, Vol. 2, No 3 PP 54-60.
41. **O.U. Oparaku,** Decentralised electric power generation in Nigeria: The role of Renewable Energy resources. Proceedings of the International Workshop on Renewable Energy for Sustainable Development in Africa, University of Nigeria Nsukka; July 29- August 1, 2007; Pg 28-36.
42. **I. S. Eze, C.N. Anyanwu, O. U. Oparaku and C. O. B. Okoye.** Animal Manure: A Resource or a Waste? In *Proc. 37th Annual Conference of the Nigerian Society of Chemical Engineers, Enugu, 22-24th Nov. 2007, pp. 161-168.*
43. **I. S. Eze, C.N. Anyanwu, O. U. Oparaku and C. O. B. Okoye.** Predicting the Higher Heating Values of Nigerian Biomass and Vegetable Oils (Preliminary Results). Nig. J. Solar Energy, Vol. 19,(2) 2008, pp 31 - 37.

44. O.O. Nwoke Okonkwo W.I. and O.U. Oparaku (2008) Solar Energy Use in Nigeria: Constraints and Possible Solutions.. "Nigerian Journal of Solar Energy. Vol. 19-1, pp. 90-93.
45. A.U. Ofoefule Ibeto C.N; Uzoma C.C., Oparaku O.U. (2009) Biomass Technology :A key Drive for improving climate change and Socio-economic life in Nigeria Int. J. Environ. Science 5(1) :54-58
46. E.U.O. Uzodima, A.U., Ofoefule, N.J. Enwere, O.U. Oparaku (2009). Climate change and Biogas power Generation . In Proc. National Conference on climate change and the Nigeria Environment (Eds Anyadike R.N.C, Madu I.A. and Ajacro C.K.) University of Nigeria, June 29, 2009, PP 361-373
47. O.O. Nwoke Okonkwo W.I. and O.U. Oparaku (2008) Solar Energy Use in Nigeria: Constraints and Possible Solutions.. "Nigerian Journal of Solar Energy. Vol. 19-1, pp. 90-93.
48. P.E., Ugwoke, O.U Oparaku, and C.E. Okeke (2008); The effect of Global and Diffuse insolation on the Performance of photovoltaic Modules Deployed at Fixed Angle Tilt in Nsukka, Nigeria " Nigeria Journal of Renewable Energy ;(Accepted for Publication).
49. A.U. Ofoefule Ibeto C.N; Uzoma C.C., Oparaku O.U. (2009) Biomass Technology :A key Drive for improving climate change and Socio-economic life in Nigeria Int. J. Environ. Science 5(1) :54-58
50. E.U.O. Uzodima,, A.U. Ofoefule, N.J. Enwere, O.U. Oparaku (2009). Climate change and Biogas power Generation . In Proc. National Conference on climate change and the Nigeria Environment (Eds Anyadike R.N.C, Madu I.A. and Ajacro C.K.) University of Nigeria, June 29, 2009, PP 361-373
51. **C.N. Anyanwu, O.U. Oparaku, S.O. Onyegebu, U. Ekwuatu, N.I. Edem, K. Egbuka, P.N. Nwosu and V.K. Sharma.** Experimental investigation of a Photovoltaic-powered Solar cassava dryer. Drying Technology Vol. 30(2010):398-403.
52. **S.U. Offiah, S.C. Ezugwu, F.I. Ezema, O.U. Oparaku;** Effects of deposition media and thermal annealing on chemical-bath-deposited Zinc Oxide thin films: Journal of Ovonic research, Vol. 6 No. 3, pg 135-141(2010)
53. O.O. Nwoke, Agbo, S. N. Okonkwo, W.I. and Oparaku, O.U 2010; Studies on the Viability of embryonic life in food crops dried under solar conditions Nig. J. of Solar Energy, 21:165-168.

54. C.C. Uzoma Ibeto ,C.N.Oparaku C.G.Nwoke O. O. Obi Nnaji , C.E. Oparaku ,O. U. and Unachukwu, G. O.(2010): leve of Awareness and Utilization of Biogas Technology in South-East Zone of Nigeria .International Journal of Applied Agricultural Research ISSN 09732683 Volume 5 pp .569-574.
55. **C.N. Anyanwu, I.S. Eze, O.U. Oparaku, G. Braccio, and V.K. Sharma.** Characterisation of locally grown vegetable oils for biodiesel production In Nigeria. J. Chem. Society of Nigeria: Vol. 36(1), 2011, pg 165-169.
56. **S.U. Offiah, S.C. Ezugwu, F.I. Ezema, O.U. Oparaku:** Spectral Analysis of Chemical bath-deposited copper selenide thin films: Nigerian J. of Solar Energy, Vol. 22, 2011; pg 97-104(2011).
57. **I.O. Obi, O.U. Oparaku, J.A. Ibemesi:** Cathodic protection of irrigation pipelines using solar electricity; Nig. J of Solar Energy, Vol. 20, 2011, pg 79-83.
58. **I.O. Obi, P.O. Ukoha, O.U. Oparaku:** Current measurement in the use of Photovoltaic Electricity for cathodic protection of pipelines in simulated coastal environment of Nigeria; Nig J. of Solar Energy, Vol. 22, 2011, pg 52-56.
59. **O.O. Okala, C.C. Uzoma, C. Ibeto, C. Okpara, C. Nnaji, O.I. Obi, O.U. Oparaku;** Analysis and survey of the application of solar dryers in eastern Nigeria; Int. J. Agricultural and Biological Engineering. Vol. 4, No. 3, 2011, pg 79-82.
60. **C.N. Anyanwu, C.C. Mbajigbo, O.U. Oparaku, E.U. Odigboh and U.N. Emmanuel;** A design algorithm for batch stirred tank transesterification reactors. Energy Conversion and Management Vol. 62 (2012): 40-46.
61. **A.C. Nwanya, P.E. Ugwuoke, P.M. Ejikeme, O.U. Oparaku and F.I. Ezema:** Jathropa Curas and Citrus Aurantium Leaves Dye Extract for Use in Dye Sensitized Cell with TiO₂ Films, Int. J. Electrochem. Sci., 7(2012), pg 11219-11235.
62. **I.S.Eze, A.U.Ofoefule, E.O.U.Uzodima, E. C. Okoroigwe, N. F. Oparaku ,J.I.Eze ,O.U Oparaku (2011) ;** Charaterisation and performace Evatlution of 11m³ Biomass plant at National Centre for Energy Research and Development ,University of Nigeria ,Nsukka ,Cont ,J. Ren .Energy 2(1): 1-6.
63. **A.C.Nwanya, F.I. Ezema, P.Ejikeme, and O.U. Oparaku (2011),** "Dye Sensitized Solar cell: A Technically and Economically Alternative concept to p-n Junction Photovoltaic device" International Journal of Physical Science 6, (22), 5190-5201.

64. P.N. Nwosu, O.U. Oparaku, W.I. Okonkwo, G.O. Unachukwu, and D. Agbiogwu (2011): Experimental Study of a Thermosynphon Solar Water Heater Coupled to a Fiber-Reinforced Plastic (FRP) Storage Tank, ISSN 0003-701X, Applied Solar Energy, 2011, Vol. 47, No. 3, pp.207-212.
65. A.C.Nwanya, P.E.Ugwuoke, O.U. Oparaku and F.I.Ezema (2012) "Chemical Bath Deposited TiO₂ prepared for use in Dye-Sensitized Solar Cell" Nigeria Journal of Solar Energy, 23, 165-170.
66. A.C. Nwanya, P.E. Ugwuoke, P.M. Ejikeme, O.U. Oparaku and F.I. Ezema (2012) "Jathropa Curcas and Citrus Aurantium Leaves Dye Extract for use in Dye Sensitized Solar Cell with TiO₂ Films" International Journal of Electrochemical Science, 7, 11219 -11235.
67. A.C. Nwanya, F.E. Odo and O.U. Oparaku (2012), "The Impact of Climate Change on Renewable Energy Resources and Production Systems in Nigeria" Advances in Science and Technology: An African Journal for Research, Innovation and Discovery, 6,2s, 136-144.
- 68.C.C. Uzoma, C.E. Nnaji, C.N. Ibeto, C.G. Okpara, O.O. Nwoke, O.I. Obi, G.O. Unachukwu and O.U. Oparaku(2011). Renewable Energy Penetration in Nigeria: A Study of the South-East Zone. Continental J. Environmental Sciences 5 (1); 1-5.
69. C.N. Udanor, O.U. Oparaku, B. Udoisang(2012).An Agent-Driven M-Learning Application. Presented at the 4th Workshop on UNESCO-HP "BRAIN GAIN INITIATIVE" (in conjunction with The 3rd Kuwait Conference on e-services and e systems) held in Kuwait in December 18-20.
70. C.N. Udanor, O.U. Oparaku(2013). Performance Analysis of a Multi-Agent M-learning system: Testing and evaluation results (under review by Journal of Education Technology and Society).
71. O.U. Oparaku, F.N. Ugwoke, K.C. Okafor, C.C. Udeze, I.O. Okeke (2014). A Novel Framework for Cloud Energy Metering System(CEMS) in Solar PV Plant. Afr. J. Comp. & ICT Vol. 7,No. 2, pg 15-26.

72. K.C. Okafor, F.N. Ugwoke, C.C. Udeze, I.O. Okeke, O.U. Oparaku. (2014) Design Specification for Cloud Energy Metering System(CEMS): Models, Algorithms and Design Dimensions for Renewable Energy. Afr J. Comp & ICT Vol. 7 No. 2, pg 53-66.
73. K.C. Okafor, F.N. Ugwoke, Obayi I.A.,O.U. Oparaku; The Impact of Distributed Cloud Computing Initiatives(DCCI) on Green Energy Management Using Cronbach's Alpha Test. Int. Journal of Advanced Sci & Tech. Research Vol. 4, No.4, pg 853-865.
74. K.C. Okafor, Ugwoke F.N., Udeze C.C., Okezie C.C., O.U. Oparaku(2014). Gateway load balancing service in cloud data center environments using throuput metrix index; American Journal of Computation, Communication and Control, Vol. 1, No. 1, pg 8-17.
75. K.C. Okafor, F.N. Ugwoke, O.U. Oparaku(2015). Distributed Cloud Computing Network(DCCN) Server Resource Pool Using Virtualization Dynamics; Int. J. of Advanced Research in Electronics and Communications Engineering Vol. 4, No. 2, pg 280-294.

OTHER ACTIVITIES OUTSIDE CURRENT EMPLOYMENT

REVIEW OF ACADEMIC PUBLICATIONS

Over 60 Journal articles have been reviewed for several Journals among which are:

- | | | |
|-------|---|------------|
| (i) | Nigerian Journal of Solar Energy | (NJSE) |
| (ii) | Nigerian Journal of Renewable Energy | (NJRE) |
| (iii) | Nigerian Journal of Technology | (NIJOTECH) |
| (iv) | Journal of Science and Engineering Research | (GSER) |
| (v) | Global Journal of Pure and Applied Sciences | (GJPAS) |
| (vi) | Global Journal of Engineering Research | (GJENR) |

CONFERENCES/WORKSHOPS/SEMINARS ATTENDED

I have participated in over 80 conferences/workshops/seminars in Nigeria, Britain, Ivory Coast, Ghana, United States of America, France, Netherlands, Germany, India, Spain, Scotland, Mexico.

PARTICIPATION IN INTERNATIONAL ACTIVITIES/MEETINGS

1. European Photovoltaic Solar Energy Conference, Barcelona, Spain, June 2005.
2. Scientific visit to discuss collaborative Research and Development with Newcastle Photovoltaic Applications Centre, University of Northumbria at Newcastle-Upon-Tyre November 2005.
3. Scientific visit to discuss collaborative R & D work with ENEA, TRISAIA, ITALY, November, 2005
4. World Renewable Energy Congress (Conference) Florence, ITALY, August, 2006
5. Renewable Energy Conference, organized by Department of Electrical Engineering, University of the District of Columbia, Washington D.C. USA.
6. Research visit to International Centre for Theoretical Physics (ICTP) as a Senior Associate of ICTP, under the Associateship Scheme arrangement, January 2007.
7. Visit to Brazil as a member of the Federal Government of Nigeria Delegation to understudy the Brazilian Energy sector (Renewable Energy in Particular) August, 2007.
8. World Energy Congress (Conference) Rome, Italy, November, 2007.
9. World Renewable Energy Congress (Conference) Glasgow Scotland, July, 2008.
10. World Energy Council Executive Assembly in Mexico (Member of Nigerian Delegation), November, 2008.

SERVICE AS INVITED RESOURCE PERSON TO CONFERENCES/WORKSHOPS

I have been invited as resource person to deliver technical papers in more than twenty (20) energy – related Scientific Fora, among which are;

- i. **ECN-NYSC Training Workshop** on Five Renewable Energy Technologies, Sokoto, Nigeria, July, 1998. Topics: Lecture and Practical sessions on PV.
- ii. **NITEL Workshop** on PV Technology and Applications in Industry, Lagos Nigeria, October, 1998. Topic: Economic Viability of Photovoltaics in the Telecommunications industry.

- iii. **ECN-NYSC Training Workshop** on Five Renewable Energy Technologies, Lagos, Nigeria, June 1999. Topic: Lecture and Practical sessions on PV.
- iv. **Solar Energy Society of Nigeria/Energy Commission** of Nigeria Joint Solar-PV Workshop, Abuja, 4 - 6 April, 2000. Topic: Solar PV systems for Distributed power supply and their viability.
- v. **National Workshop on Photovoltaic Technology and Applications** at National Centre for Energy Research and Development, University of Nigeria, Nsukka, 5 - 7 November, 2001.
- vi. **ECN - UNESCO Workshop** on the Maintenance and Installation of Photovoltaic Systems (organized for the NW geopolitical Zone of Nigeria) 19 - 21 November, 2001. Topic: Several lecture modules and laboratory experimentation sessions were handled.
- vii. **ECN-UNESCO Workshop** on the Maintenance and Installation of Photovoltaic systems (organized for the SE geopolitical Zone of the country) 11-13 December, 2001. Topic: Several lecture modules and laboratory experimentation sessions were handled.
- viii. **Prospects and Potentials of Solar Water Heaters** in Nigeria Workshop organized by “Association for the Promotion of Solar Energy Utilization in Nigeria (May, 2001).
- ix. **ECN-NYSC Training Workshop** on Five Renewable Energy Technologies, Nsukka, Nigeria. (February 2003). Topic: Lecture and Practical session on PV.
- x. **National stakeholders meeting** on the Renewable Energy Masterplan for Nigeria Lecture topic: Target for RE Dissemination in Nigeria (Nov.2005).
- xi. **Photovoltaic systems for rural development:** Presented at National Workshop on Renewable Energy Application of Development of Rural Remote Locations in Nigeria, Yenagoa, Bayelsa State October 2006.
- xii. **Decentralized Electricity Generation from Renewable Energy Resources** in Africa. Presented at International Workshop on Renewable Energy for Sustainable development in Africa. July 2007, Nsukka, Nigeria
- xiii. **The Role of Chemical Engineers in the development of Renewable Energy** in Nigeria. Paper presented at the Chemical society of Nigeria Conference in August 2007, Enugu, Nigeria.
- xiv. **Renewable Energy Research and Development in Nigeria.** Paper Presented at the International Renewable Energy Conference(IREC 2007) Abuja Nigeria, October, 2007.

- xv. **Application of Solar Photovoltaics for Infrastructure Development in Rural Settings.** Paper presented at a 3-Day Regional Seminar on Rural Infrastructure Development in the Niger Delta States. 27-29 February 2008.
- xv **Chemistry and Materials for Renewable Energy Research and Development:** Paper presented at the zonal conference of the Nigerian Association of Chemists, Enugu, June 2008.
- xvi **Renewable Energy Potentials, Markets Development and Financial Incentives:** Paper presented at the National Workshop on Legislative Framework for Promotion of Renewable Energy in Nigeria, Calabar, October 2008.
- xvii **Photovoltaic systems and applications:** paper presented at the ECN-NYSC Workshop on Renewable Energy; Minna, Nigeria, October 2008.
- xvii Towards a national solar photovoltaics programme: Paper Presented at the 2nd International Workshop on Renewable Energy for Sustainable Development in Africa; Enugu, Nigeria; July 2010.
- xviii **Photovoltaic systems: Design Basics, Installation and Applications;** Three papers Presented at the 3rd International Workshop on Renewable Energy for Sustainable Development in Africa; Enugu, Nigeria, November, 2012.
- Xix **Challenges and prospects of Solar Photovoltaics for Electricity Generation in Nigeria;** Presented at the Herbert Macaulay Memorial Lecture Symposium on “Revitalizing an Effective Power Sector for Sustainable Development in Nigeria” June 20, 2014. Pg 25-33.
- Xx **Renewable Energy Technologies for National Development:** Lecture delivered at the Nigerian Intitute of Electrical and Electronic Engineers meeting(Nsukka Branch), August 2015.

ADMINISTRATIVE/TECHNICAL POSITIONS HELD

- i) Dean, Faculty of Engineering, University of Nigeria, Nsukka (August 1 2016-
- ii) Head, Department of Electronic Engineering, University of Nigeria, Nsukka (August 2011- August 2014).
- iii) Director, National Centre for Energy Research and Development, University of Nigeria, Nsukka(October 2004-October 2009).
- iv) Acting Director, in the absence of the substantive director (1999 – 2004)
- v) Head, Photovoltaic Research Unit NCERD (1997-2012)
- vi) Ex-officio Executive Member, Solar Energy Society of Nigeria(2003-2006)
- vii) 1st Vice-President, Solar Energy Society of Nigeria(2001 – 2003)

- viii) Secretary General, Solar Energy Society of Nigeria (1997 – 2001)
- ix) Technical secretary, Solar Energy Society of Nigeria (1992 – 1997)
- x) Assistant Technical Secretary, SESN (1990 – 1992)
- xi) Editor in Chief, Nigerian Journal of Solar Energy (NJSE) (1992-1997)
- xii) Assistant Editor-in-Chief NJSE (1990 – 1992)
- xiii) Associate Editor, Global Journal of Engineering (2001 -)
- xiv) Associate Editor, Journal of Science & Engineering (2003 -)
- xv) Chairman, Local Organizing Committee, National Sensitization Workshop on Energy Efficiency in Industries in the South-East Zone of Nigeria (May,2004)
- xvi) Chairman, Local Organizing Committee, National Workshop on Photovoltaic Technology and Application (2001)
- xvii) Seminar Coordinator, Energy Research Centre (1991 – 1999).
- xviii) Chairman Postgraduate Studies Committee, Department of Electronics Engineering (1999 – 2001)
- xix) Secretary/Member, Faculty of Engineering Postgraduate Studies Committee (1990 – 1992).
- xx) Member, Mechatronics Research Group, University of Nigeria
- xxi) Coordinator, Optoelectronics and Renewable Energy research Group, University of Nigeria.

MEMBERSHIP OF TECHNICAL/ADMINISTRATIVE COMMITTEES

- i) Member, National Study Group on National Energy Survey (1991)
- ii) Member. UNESCO Study Group on Renewable Energy Resources in Nigeria(1997).
- iii) Member, National Committee on the manufacture of Photovoltaic (PV) Modules and PV System Components (1997 – 1999)
- iv) Member, National Committee, National Energy Masterplan (2006)
- v) Member, Advisory Committee, Energy Commission of Nigeria (2004 -)
- vi) Member, Nigeria Technical Delegation to Brazil on Energy (August 2007)
- vii) Member, Board of Trustees, Energy Commission of Nigeria (2004 - 2009).
- viii) Member, Senate Research Grants Committee, University of Nigeria, Nsukka (1989 – 2004).
- ix) Membership of Two University Examination Malpractices Committee (2004 and 2006).
- x) Member, Senate Entrance Board, University of Nigeria(2011-date).

CONSULTANCY

- i) Consultant to Energy Commission of Nigeria on the Laje Community Solar PV Rural Electrification Project (2005).
- ii) Consultant to UNDP/ECN: Renewable Energy Master Plan for Nigeria (Photovoltaics Consultant), October 2004 to Nov. 2005.
- iii) Consultant to ECN on “Guidelines for monitoring and evaluation of the National Energy Master Plan (NEMP) of Nigeria.”

TEACHING AND STUDENTS SUPERVISION

I have been lecturing and supervising students at undergraduate and postgraduate levels.

Taught courses

ECE 321: Physical Electronics
ECE 322: Applied Electronics
ECE 471: Digital Electronics
ECE 521: Advanced Circuit Techniques
ECE 522: Solid State Electronics
ECE 625: Digital Integrated Electronics.
ECE 623: Computer Architecture.
ECE 601: Synopsis and Research grants Writing
ECE 701: Security Engineering

Postgraduate Supervision

I have graduated two(2) PhD students and eleven(11) Masters degree students.
I am currently supervising five(5) PhD students and twelve(12) Masters degree students.

ACADEMIC DISTINCTIONS/SPECIAL AWARDS

- i) British Council Award for 2-years M.Phil Degree Programme in the United Kingdom (1985-1987)
- ii) Award of Scholarship to complete the PhD Programme. Awarded by British Aerospace department for research on ITO/InP Space Solar Cells at Northumbria University at Newcastle Upon Tyne. (March 1987)

- iii) Award of “Fellow, Solar Energy Society of Nigeria” by the Solar Energy Society of Nigeria in recognition of outstanding contributions to the Society in general and Energy Research, Development and Dissemination in particular (December, 2003).
- v) Award of “Senior Associate” position (Non-renewable Energy Technologies) by **Abdus Salam**, International Centre for Theoretical Physics, Trieste, ITALY. The Award is active from March 2004 -December 2009.
- vi) Global Journal Award.
Awarded by the Editorial Board of the Global Journal Series, in recognition of outstanding contributions and commitment to the growth of the Global Journal Series through editorial and article review services offered.
- vii) The Nigerian Golden Jubilee Award
By PSR Magazine: **For Contributions to Nation-Building in the sphere of Research and Development**, During the Celebrations Marking Nigeria’s 50 Years of Political Independence(25th September, 2010, in Abuja, Nigeria).
- viii) An Award in recognition of **Meritorious services to the National Centre for Energy Research and Development, University of Nigeria, as Director between October 2004 and October 2009.**
- ix) Award of Excellence in Energy Management, by the School of Management Technology, Federal University of Technology, Akure, In recognition of Contribution to the Development of the Energy Sector in Nigeria, May 27, 2014.
- X) An Award by the Prison Rehabilitation And Welfare Association(**PRAWA**) for contributions made to the welfare of Prison inmates at Nsukka Prison(June 2014).