



PROFESSOR KESHAW SINGH
D.Sc.(honris causa)(KNUST, GHANA)
M.Sc., Ph.D.(BHU), CPhys(U.K.), FInstP(U.K.), FGhInsP.
EMERITUS PROFESSOR

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Personal Profile

I obtained my B.Sc. and M.Sc. degrees in 1966 and 1968 respectively from the University of Gorakhpur, India. Just after my M.Sc. I joined Banaras Hindu University(BHU), India for my Ph.D. I completed my Ph.D. degree in 1971. I was awarded an Honorary D.Sc. Degree by Kwame Nkrumah University of Science and Technology, Kumasi, Ghana for distinguished and dedicated service to the University (2002). I served the KNUST for 28 years until went on compulsory retirement in 2007.

I joined the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana on 1st October, 1979 as Lecturer in Physics and was promoted to Senior Lecturer with effect from the very 1st October 1979. I was again promoted to Associate Professor in 1984 and Full Professor in 1997. I was appointed Head of Physics Department in 1990 and was elected Dean of Faculty of Science in 1993. I served as Head and Dean until 1998.

I was also the Founding Coordinator of the Optometry Programme at KNUST which is now a full Department under the College of Science. I was one of the founding members of Energy Research Group(ERG) of Ghana and Deputy Coordinator of ERG.

I was the Campus Coordinator of African Virtual University(AVU) project from 1997 –2000 and founding Director of Kumasi Virtual Centre for Information Technology (KVCIT) from 2000 to 2004. I served as Dean of Faculty of Distance Learning at KNUST from 2005 to 2007.

I am also a Chartered Physicist as well as Fellow of Institute of Physics(UK), and Fellow of Ghana Institute of Physics.

My field of specialization is Solid State Physics and I did my Ph.D. in Theoretical Solid State Physics. After my Ph.D. I started experimental work in the areas of Semiconductor Devices and also on Materials science and non conventional energy (Photovoltaics). I have over 80 publications to my credit and also the author of a reference book "Electrical and Chemical Conversion of Solar Energy". My publications cover both theoretical and experimental topics. Two of my research projects were sponsored by International Centre for Theoretical Physics (ICTP), Trieste, Italy, and ROSTA, Nairobi. These were "Origin of surface states in Semiconductor devices" and "Trapping of charge carriers in Semiconductor devices" respectively. I have taught Optoelectronics, Statistical Mechanics, Structure and Properties of Polymers, Classical Theory of Fields, Classical Quantum Mechanics, Advanced Quantum Mechanics, Group Theory at Undergraduate and Graduate levels. In December 2015, one of my research projects entitled "*Experimental growth and characterization of CdS/ZnS like binary compound based nanostructures*" was also sponsored by The World Academy of Sciences (TWAS), Italy.

I have served on many statutory committees including University Executive Committee, Academic Board, University Appointments and Promotions Committee, Search Committee for the Appointment of Vice-Chancellor (2006), Search Committee for the Appointments of Provosts of Colleges of KNUST (2004), etc. I have also served as a Professor of Physics and Head of Department of Science & Humanities in the Faculty of Engineering and Technology, Mody University, (MITS) Lakshmanagarh, Rajasthan, India from 2007 to 2013. Again, I joined the Department of Physics, KNUST in August 2013 as Professor of Physics.

On-going Project/ Activities (Department of Physics)

- i.** The World Academy of Sciences (TWAS), Italy Project on "Experimental growth and characterization of CdS/ZnS like binary compound based nanostructures"
- ii.** PhD supervision – Mr. O.A. Nunoo (since 2016/17).
- iii.** PhD Supervision – Mr. Asem H. (since 2020/21)

Education

Qualifications

- (i) Ph.D. B.H.U., Varanasi, India, 1971.
- (ii) M.Sc. University of Gorakhpur, India, 1968.
- (iii) B.Sc. University of Gorakhpur, India, 1966.

Honorary Degree and Memberships of Institutions

- (i) **D.Sc.(Honoris Causa), KNUST, Kumasi, Ghana (2002).**
- (ii) **Institute of Physics (U.K.)
Chartered Physicist and Fellow of Institute of Physics(FInstP)**
- (iii) **Ghana Institute of Physics
Fellow(GhInstP)**
- (iv) **International Centre for Theoretical Physics (ICTP)
Affiliate, 1985.**
- (v) **Ghana Science Association
Member, 1980 to date
Executive member, Kumasi branch 1983-1985**
- (vi) **Energy Research Group(ERG) Ghana
Founding member, 1985
Deputy Coordinator since 1985
Chief Editor, ERG Newsletter since 1985
Chief Editor, ERG Bulletin, since 1985**
- (vii) **International Solar Energy Society (ISES) Member, 1992**

Positions of responsibility

- (i) **Professor of Physics and Head of Department of Science
And Humanities, MITS University, Lakshmanagarh,
Rajasthan, India (2007 – 2013).**
- (ii) **Dean of Faculty of Distance of Learning (FDL now IDL),
KNUST (2005- 2007).**
- (iii) **Director of Kumasi Virtual Centre for Information
Technology(KVCIT now CIT), IDL, KNUST. (2000 - 2004)**
- (iv) **Campus Coordinator of African Virtual University(AVU),
KNUST (1997 – 2000)**

**(v) Dean, Faculty of Science, KNUST, Kumasi, Ghana.
(1993 -1998)**

**(vi) Head, Department of Physics, KNUST, Kumasi, Ghana
(1990 – 1998)**

Employment

ACADEMIC RANK HELD AND SUBJECTS TAUGHT

**(i) University of Science and Technology, Kumasi,
Ghana**

(a) October 1997 to 2007

Rank: PROFESSOR

Subject taught:

Undergraduate: Optoelectronics, Electricity and Magnetism,
Properties of Matter., Statistical Mechanics.

Postgraduate: Classical Theory of Fields, Advanced Quantum
Mechanics.

(b) October 1984 to September, 1997

Rank: ASSOCIATE PROFESSOR

Subject Taught:

Undergraduate: Materials Science (B.Sc.) E.M. Theory
Quantum Mechanics

Electricity and Magnetism

Postgraduate: Materials Science
(M.Sc.) Classical Theory of Fields
Advanced Quantum Mechanics

© October 1979 to September 1984

Rank: SENIOR LECTURER

Subject Taught:

Undergraduate: Materials Science
E.M. Theory

Solid State Physics

Quantum Mechanics

Electricity & Magnetism

Postgraduate: Advanced Quantum Mechanics.

- (ii) **Banaras Hindu University, Varanasi, India**
- (a) **January 1978 – September 1979**
Rank: RESEARCH ASSOCIATE
Subject Taught:
Postgraduate: Materials Science
- (b) **January 1975 – December 1978**
Rank: POOL OFFICER/ LECTURER
Subject Taught:
Undergraduate: General Physics Sound
Postgraduate: Solid State Physics
- (c) **January 1974 – December 1974**
Rank: CSIR POSTDOCTORAL FELLOW
Responsibility:
Research Project Undertaken:
Semiconductor Devices
Supervision: Supervision and grading of Laboratory Practical for undergraduate students.
- (d) **January 1972 – December 1973**
Rank: CSIR SENIOR FELLOW
Responsibility:
Research Project Undertaken:
Semiconductor Devices
Supervision: Supervision and grading of laboratory Practical for undergraduate students.
- (e) **January 1970 – December 1971**
Rank: U.G.C. RESEARCH FELLOW
Responsibility:
Research Project Undertaken:
Lattice dynamical studies of metals
- (f) **January 1969 – December 1969**
Rank: PART-TIME LECTURER
Responsibility:
Teaching Undergraduate:
General Physics Sound
Supervision: Supervision and grading of Laboratory Practicals for undergraduate students.

Recent Research Publications

2016/17

1. Kofi Owusu-Sekyere, Isaac Nkrumah, R. K. Nkum and K. Singh, A STUDY OF OPTICAL ABSORPTION OF POLYANILINE THIN FILMS PREPARED BY CHEMICAL BATH DEPOSITION (CBD) METHOD
International Journal of Advanced Research in Engineering and Technology (IJARET) Volume 7, Issue 2, March-April 2016, pp. 109–117.
2. Kofi Owusu-Sekyere, Isaac Nkrumah, R. K. Nkum and K. Singh
EFFECT OF PH ON THE OPTICAL - ABSORPTION OF POLYANILINE THIN FILMS PREPARED BY ELECTROCHEMICAL POLYMERIZATION ON ITO GLASS
International Journal of Advanced Research in Engineering and Technology (IJARET) Volume 7, Issue 4, July-August 2016, pp. 43–49,
3. KOFI OWUSU-SEKYERE, ISAAC NKUMAH, R. K. NKUM AND K. SINGH
OPTICAL BEHAVIOR OF PANI/SNO₂ NANOCOMPOSITES
European Scientific Journal March 2017 edition vol.13, No.9 ISSN: 1857 – 7881 (Print) e – ISSN 1857- 7431.

2015/16

1. R. Y. Tamakloe¹, M. Commey², Agoe Obed Nai¹, Turkson Samuel Kwamena¹, K. Singh, EFFECT OF POROSITY ON OCV AND WASTEWATER 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 5, May (2015), Pp. 06-11.
2. A. A. Bamfo-Asante¹ , Isaac Nkrumah² , Mark Paal³ , K. Singh, EFFECT OF DEPOSITION AND ANNEALING TEMPERATURES ON OPTICAL BAND GAP OF SNO₂ THIN FILMS DEPOSITED ON GLASS SUBSTRATE BY CHEMICAL VAPOUR DEPOSITION (CVD) METHOD , IJARET, Volume 6, Issue 4, April (2015), pp. 09-16.
3. R.Y. Tamakloe and K. Singh, SYNERGY OF BIO-WASTE DISPOSAL AND SIMULTANEOUS ENERGY GENERATION BY MICROBIAL FUEL CELLS (MFCs), *1st International Conference on Engineering, Science, Technology and Entrepreneurship 6th to the 7th of August, 2015.*

2014/15 [Published Papers]

1. R.Y. Tamakloe, H. Agamasu, K.Singh : Power Generation by Double Chamber Membrane-Less Microbial Fuel Cells [MLMFCs] International Journal of Advanced Research in Engineering & Technology (IJARET), Volume 5, Issue 7, (2014), pp. 30- 38.
2. R. Y. Tamakloe and K. Singh : Electricity Generation by Single and Double Chamber Membrane-Less Microbial Fuel Cells [MLMFCs] Journal of Ghana Science Association Vol. 15, No. 1 (2015).

2013/14 [Published Papers]

1. R. Y. Tamakloe ,K. Singh, T. Opoku-Donkor, H₂O₂ As Electron Acceptor in Double Chamber Microbial Fuel Cells, International Journal of Advanced Research in Engineering & Technology (IJARET), Volume 5, Issue 1, January (2014), pp. 01-06.
2. K. Singh*, Brajraj Singh and R. Chaudhary “ A New Form of Extended Ziman-Faber Theory for Liquid and Amorphous Binary Alloys” International Journal of Advanced Research in Engineering & Technology (IJARET), Volume 5, Issue 1, January (2014), pp. 36-44.
3. T. Opoku-Donkor, R. Y. Tamakloe, R. K. Nkum, K. Singh, Effect of COD on OCV, Power Production and Coulombic Efficiency of Single-Chamber Microbial Fuel Cells International Journal of Advanced Research in Engineering & Technology (IJARET), Volume 4, Issue 7, November - December 2013, pp. 198-206
4. Brajraj Singh, D C Gupta, R. Chaudhary, K.Singh and Y M Gupta, “Comparative Study of Layered Structure Formulations for High Temperature Copper-Oxide Superconductors”, International Journal of Advanced Research in Engineering & Technology (IJARET), Volume 4, Issue 2, 2013, pp. 46 – 60.

2012/13 [Published Papers]

5. Brajraj Singh, D C Gupta, R. Chaudhary, K.Singh and Y M Gupta, “Strong Coupling Model for High-Tc Copper-Oxide Superconductors”, International Journal of Advanced Research in Engineering & Technology (IJARET), Volume 4, Issue 1, 2013, pp. 134 – 141.
6. Brajraj Singh , R. Chaudhary, R. Yadav & K. Singh, A study on Gender difference in attitude towards science, International Journal of Management (IJM), Vol. 4, Issue 1, Jan – Feb.(2013), pp 112-120.

7. Brajraj Singh, Rakhee Chaudhary and K. Singh, Execution of Organisational Strategies – A new paradigm in shaping the future of Higher Education, International Journal of Management (IJM), Volume 4, Issue 1, Jan.- Feb. (2013), pp 38-46.
8. M. Mishra, P.P. Paltani, B. Singh, and K. Singh, Gaussian Beam in Highly nonlocal nonlinear medium, International Journal of Pure and Applied Mathematics, Volume 83 (5), 2013.

MEMBERS OF SOME IMPORTANT COMMITTEES

- (1) External Examiner for B.Sc., M.Sc./Mphil, University of Ghana, Legon.
- (2) External Examiner for B.Sc., MSc./Mphil, University of Cape Coast.
- (3) External Assessor, University of Ghana, Legon.
- (4) External Assessor, University of Cape Coast.
- (5) External Assessor, Ghana Atomic Energy Commission, Kwabenya, Ghana.
- (6) Deputy Coordinator, Energy Research Group (ERG), Ghana.
- (7) Chief Editor, ERG – Newsletter – A quarterly newsletter published by Energy Research Group, Ghana.
- (8) Chief Editor, ERG – Bulletin – An yearly Journal of Energy Research and Technology published by Energy Research Group, Ghana.
- (9) Member of Academic Board, University of Science and Technology, Kumasi, Ghana.
- (10) Member of Executive Committee, University of Science and Technology, Kumasi, Ghana.
- (11) Member of CSIR Advisory Committee on Renewable Energy, Council for Scientific and Industrial Research (CSIR), Ghana.
- (12) Member of Advisory Board, University Books and Publication Committee, University of Science and Technology, Kumasi, Ghana.
- (13) University Representative on the National Planning Committee for the 2nd Congress of Pan African Scientist and Technologist (PUST), 1989/90.
- (14) Member of Planning Committee of 1st International Kumasi College 1988.
- (15) Member of Planning Committee of 2nd International Kumasi College 1991.
- (16) Member of Planning Committee of 1st National Symposium, Kumasi, 1986.
- (17) Member of Planning Committee of 2nd National Symposium on Renewable Energy, Kumasi, 1987.
- (18) Member of Planning Committee of 3rd National Symposium on Energy, Kumasi, 1989.
- (19) Member of Planning Committee of 1st International Workshop on Ultrasound in Medical Practice, July 10-15, Kwabenya, Ghana.
- (20) Faculty Representative on the University Syllabus Committee 1992/93.
- (21) Member of International Solar Energy Society (ISES).
- (22) Member of Ghana Solar Energy Society (GHASES).
- (23) Entry in the International Who's Who in Medicine – 2nd Edition (International Biographical Centre, Cambridge CB23QP, ENGLAND).

- (24) Member, University Strategic Plan Committee(2000).
- (25) Member, University Curriculum/Syllabus Committee(1992/93).
- (26) Assessor, Promotions of Professorial/non-Professorial , Univ.of Ghana, Univ. Of Cape Coast, Ghana Atomic Energy Commission.
- (27) Chairman, Committee for re-structuring of College of Science, KNUST, 2002.
- (28) Member of the University Appointments and Promotions Committee since 2000 to 2007.
- (29) Member of Search Committee for the Appointment of Vice-Chancellor (2006)
- (30) Member of Search Committee for the Appointments of Provosts of Colleges of KNUST (2004),
- (31) Member of Search Committee for the Re-Appointments of Provosts of Colleges of KNUST (2007),
- (32) Member of Senate, MITS, Lakshmanagarh, Rajasthan, India (2007 – 13).
- (33) Member of Governing Council, St. Margaret College, Kumasi (2013-to date).

ACADEMIC/ADMINISTRATIVE POSITIONS IN DISTANCE EDUCATION INSTITUTION

1ST CAMPUS COORDINATOR, AFRICAN VIRTUAL UNIVERSITY, KNUST WORLD BANK PROJECT AT KNUST, KUMASI, GHANA(1997- September, 2000).

FOUNDING DIRECTOR, KUMASI VIRTUAL CENTRE FOR INFORMATION TECHNOLOGY, KNUST, KUMASI, GHANA (2000 - 2004).

FOUNDING DEAN, FACULTY OF DISTANCE LEARNING KNUST, KUMASI, GHANA (Jan. 2005 – September 2007)

1. African Virtual University Inaugural Training Workshop, Addis Ababa, February,16 -22, 1997.
2. AVU Operational Phase Planning Campus Coordinators' Workshop and Vice Chancellors' Conference, Kenyatta University, Nairobi, Kenya, November, 18 – 23, 1999.
3. Round- Table Discussion on the African Virtual Community College, GIMPA, GHANA, 31 July, 2000.
4. Conference on effective use of ICT to create a new environment for Learning, Teaching and Research, Organised by Carnegie Corporation(US), in Addis Ababa, July 29 – August 1, 2002.
5. 1st Training Workshop for AVU/RMIT Computer Science Programmes, Dar es Salaam, Tanzania, November 18 – 22, 2002.
6. 2nd Training Workshop for AVU/RMIT Computer science Programmes, Dar es Salaam, Tanzania, October 13 – 17, 2003.
7. African Virtual University Workshop on Curriculum Coordination Committee(CCC-1), Inter Continental Hotel, Nairobi, Kenya, November 15 – 19, 2004.
8. AVU Curriculum Contextualization Committee Meeting(CCC-2), Safari park Hotel, Nairobi, Kenya, April 4 – 8, 2005.
9. AVU/Partner Institutions Consortium Advisory Council (APICAC) Meeting, Inter Continental Hotel, Nairobi, Kenya, May 17 – 19, 2005.
10. Developed ICT Policy of KNUST "ICT4KD" – Chairman of ICT Policy Committee of KNUST

- 11. Member of Academic Board, Commonwealth of Learning CEMA/MPA programme, 2007.**
- 12. E-Content development using Captivate. Using Moodle to offer CEMBA/MPA on line. WAWASAN Open University, Penang, Malaysia (September 2007).**



Citation
PROFESSOR KESHAW SINGH
DOCTOR OF SCIENCE (D.Sc) HONORIS CAUSA

Keshaw Singh, Professor of Physics, dedicated teacher, scientist and humanitarian, the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, is proud to honour you today in recognition of your scholarship and distinguished service to the University, the nation of Ghana and society at large.

At the phenomenal age of 24 you obtained the degree of PhD from the Banaris Hindu University in your native India, having specialized in the field of Solid State Physics. After your PhD you started experimental work in the areas of semiconductor devices and Materials Science and also on non-conventional energy (Photovoltaic). You joined the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, as a Lecturer in Physics and were promoted that same year, 1st October 1979, Senior Lecturer. Within five years you were promoted an Associate Professor. You have over 40 publications to your credit and are also the author of a reference book "Electrical and Chemical Conversion of Solar Energy". Your publications cover both theoretical and experimental topics. Two of your research projects were sponsored by the International Centre for Theoretical Physics, Trieste, Italy and ROSTA, Nairobi, Kenya.

Keshaw Singh your peers acknowledged your worth and made you Head of Department of Physics in 1990 and Dean of the Faculty of Science in 1993. You became the 1st Coordinator of the Optometry Programme at this University, which is now a full Department under the Faculty of Science. You were one of the founding members of Energy Research Group (ERG) of Ghana and Deputy Coordinator of ERG. You were also appointed the 1st Campus Coordinator for African Virtual University (AVU) project from 1998 which was later in the year 2000 integrated into the university system as Kumasi Virtual Centre for Information Technology (KVCIT)


You are now a full Professor and a member of the Institute of Physics (U.K.) and Fellow of the Ghana Institute of Physics. You are also Director of the new Kumasi Virtual Centre for Information Technology (KVCIT) at KNUST.

Keshaw Singh, you have combined your fields of scholarship with healthy hobbies of Creative Thinking and Meditation.

We trust you remember what Albert Einstein said, that "God does not play dice" and that all your work in Physics will continue to be informed by the spirit of humanity, which our Third World countries, including Ghana, have in abundance.

Keshaw Singh, the Kwame Nkrumah University of Science and Technology is honoured to honour you with the degree of Doctor of Science (D.Sc), *Honoris Causa* on the occasion of her Golden Jubilee celebrations.

Kumasi
10th August 2002


Professor John S. K. Agyin
Vice Chancellor