Personal Information

Name : Isaac Nkrumah

Date and Place of birth : 11th May 1970, Kronum, Kumasi

Nationality : Ghanaian

Marital status : Married

Number of children : Two (2)

Email : [inkrumah.sci@knust.edu.gh](mailto:inkrumah.sci@knust.edu.gh)

: [isaacxx24@yahoo.com](mailto:isaacxx24@yahoo.com)

Telephone : 0540987552

**Schools Attended with Dates and Qualifications**

1990-1992: Kumasi High School; G.C. E. A-Level

1985-1990: Kumasi High School; G.C. E. O-Level

1983-1985: Central International School; Kumasi

1976-1985: Kronum L.A. Primary School; Kronum

**Universities Attended and Academic DegreesAwarded**

2004-2005: Volkshochschule Berlin Mitte, Germany, Certificate in German

2001-2003: Chalmers University of Technology, Gothenburg, Sweden.

MSc (Nanoscale Physics and Engineering)- December 2003

1998-2000: Kwame Nkrumah University of Science and Technology (KNUST), Kumasi,

Ghana.

MSc (Physics),February, 2001

1993-1997: Kwame Nkrumah University of Science and Technology (KNUST), Kumasi,

Ghana.

BSc (Physics), February 1998

**Membership of Professional Bodies/Associations**

1. **Member**, Ghana Science Association – 2009 to date
2. **Member**, Ghana Institute of Physics – 2009 to date

Academic Ranks held and subjects taught

1. 1998-2000: **Demonstrator**, at the Department of Physics, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi. My work involved the following:
2. Giving tutorials, supervising laboratory work and grading of assignments and tutorials
3. Taking students through practical training and field work for students in the Department of Physics and Geodetic Engineering on the use of geophysical equipment
4. 2001-2002: **Teaching Assistant**, at the Department of Physics, KNUST, Kumasi.

My work involved the following:

1. Giving tutorials, supervising laboratory work and grading of assignments and tutorials
2. Taking students through practical training and field work for students in the Department of Physics and Geodetic Engineering on the use of geophysical equipment
3. 2005-09.2009: **Engineer**, Reithofer GmbH, Berlin, Germany. I supervised the quality of products
4. 09.2009-07.2014: **Lecturer** in Physics, Department of Physics, KNUST, Kumasi
5. 2014- Date: **Senior Lecturer** in Physics, Department of Physics, KNUST, Kumasi. I have teaching the following courses

Undergraduate: Experimental Physics III &IV, Quantum Mechanics I & II, Electronic Materials & Devices and Spectroscopy.

Graduate : Topics in Classical & Quantum Mechanics, Advanced Quantum Mechanics, Basic Acoustics and Psycoacoustics

**Graduate Theses Supervises: MPhil**

1. David Usirib Ngbiche, 2016. Effect of Selenium Incorporation of the Structural and Optical Properties of Cadmium Sulphide Thin Films Deposited by Chemical Bath Deposition Technique (Second Supervisor)

**Undergraduate Theses supervised**

1. Philip Jones, Prince Okumo, 2016. Synthesis and Characterisation of Lead Sulphide Thin Films Deposited on Indium Thin Oxide.
2. Emmanuel Annan-Noonoo, Richard Paemkah, 2016. Determination on Bad gap of Polyaniline Thin Film Prepared by Electrochemical Method.
3. Maxwell Acheampong, 2016. Synthesis and Characterisation of SnO2 Nanoparticles by Sol-Gel Method.
4. Prince Charles Bedi, Tony Koumondji, 2016. Synthesis and Characterisation of Multi-layer Nanocrystalline SnO2 Thin Films on Glass Substrate Using Chemical Bath Deposition Method.
5. Emmanuel Genfior, Joseph Appiah, 2015. Synthesis and UV-Visible absorption Spectra of Polyaniline Prepared at 30
6. Bright Boateng Boakye, 2015. A Study of the Effect of Deposition Temperature on the Band Gap of Cu-doped CdS Thin Films Deposited by Chemical Bath Technique.
7. Akua Acheampomaa Bamfo-Asante, 2015. Optical Properties of SnO2 Thin Film Grown by Chemical Vapour Deposition Technique.
8. Samuel Sackey, Esther Attah Emefa, 2015. Synthesis and Study of UV Absorption Spectra of Polyaniline Prepared at 0.
9. Agbemor Brayn Elorm Victoria and Dugble Martin. 2014. The effect of pH on the Band gap of PbS Thin Films Deposited by Chemical Bath Technique.
10. Nelson Aruna Edward and Nti Akwaoah Emmanuel. 2014. The effect of Annealing on the Band gap of Lead Cadmium Sulphide (PbxCd1-xS Thin Films.
11. Dadzoe Daniel and Nii Boye Enock. 2014. Deposition of Lead Sulphide Thin Film using Chemical Bath Method for Photovoltaic Application.
12. Dontoh Derick and Ibrahim Abdul Aziz. 2013. Effect of Concentration x on the Bad gap of PbxCd1-xS
13. Benimah Benjamin and Owoo Nii Kwartey Emmanuel. 2013. Effect of Deposition Time on the Band gap of Cadmium Sulphide Thin Films Deposited by Chemical Bath Method.
14. Amuah Jr. Baffu Emmanuel and Teye Samuel. 2013. Deposition of PbS Thin Films for Photovoltaic Applications.

1. Cudjoe Amakumah Helena and Konadu Agyemang Leticia. 2012. Investigation of the Optical Properties of Cadmium Sulphide Thin Films Deposited by Chemical Bath Method in Alkaline Medium

1. Amoabeng Michael and Yeboah Kofi Samuel. 2012. Investigation of the Effect of the Optical Properties of Zinc Oxide Thin Film prepared by Chemical Bath Deposition Method.
2. Abass Mohammed and Amakye Ernest. 2012. The Effect of deposition Temperature on the Band gap of ZnO deposited by Chemical Bath Technique.
3. Mumuni Rukaya and Nyumutsu Tetteh James. 2011. Investigation of Optical Properties of Zinc Oxide Thin Films by Chemical Bath Method.
4. Adade Richard and Afutu Kotey Benjamin. 2011. Investigation of Optical Properties of Cadmium Selenide Thin Films Deposited by Chemical Bath Method

**Other Professional related experience**

1. **1998 – 2000**: Research Assistant,joint collaborative research the Department of Physics, KNUST and the Universities of Frankfurt and Kiel, Germany, in carrying out geophysical investigation at the Bosumtwi impact crater area

1. **2010-Present:** Assistant Examiner, West African Examination Centre (W.A.E.C.) Senior Secondary School Physics Paper 2

**Details of Research of Research Undertaken Since Employed**

Research areas:

1. Deposition of thin films for photovoltaic applications
2. Characterisation of thin films for device applications
3. Synthesis of different types of Zeolites
4. Application of Zeolites in removing heavy metals from industrial waste

**List of Publications**

1. C. K Bandoh, I. Nkrumah, F.K Ampong, R.K Nkum, F. Boakye (2021). [Effect Of Annealing on the Structure and Optical Properties of Lead Selenide and Cadmium Selenide Thin Film prepared by Chemical Bath Deposition](https://chalcogen.ro/81_BandohCK.pdf), Chalcogenide Letters 18(2), 81-89
2. Mark Paal, Isaac Nkrumah, Francis K Ampong, David Ngbiche, Robert K Nkum, Francis Boakye (2020). [The Effect of Deposition Time and Sulfurization Temperature on the Optical and Structural Properties of Iron Sulfide Thin Films Deposited from Acidic Chemical Baths](http://sjuoz.uoz.edu.krd/index.php/sjuoz/article/view/752), Science Journal of University of Zakho 8(3), 97-104
3. Bright Kwakye-Awuah, Ralph Kwakye, Baah Sefa-Ntiri, **Isaac Nkrumah**, Elizabeth Von-Kiti, Craig Williams (2018). Comparison of the Recycling Efficiency of Metakaolin and Laboratory-Synthesized Zeolite Types LTA and LSX on Used Lubricant Engine Oil, Applied Physics Research; 10(4); 11 – 21
4. Kofi Owusu Sekyere, Isaac Nkrumah, R. K. Nkum, K. Singh (2017). Optical Behaviour of PANI/SNO2 Nanocomposites, European Scientific Journal 13(9), 242-250
5. George Obeng-Akrofi, Joseph Oppong Akowuah, Gifty Opoku-Agyeman, Isaac Nkrumah, Michael KE Donkor, Reuben Y Tamakloe, Francis K Ampong, Maike Waldhoff, Tobias Klaus, Alexander Olenberg, Eugeny Kenig, Stefan Krauter (2017). [An automated solar biomass hybrid dryer in rural communities in Ghana](https://www.academia.edu/download/64394089/swc2017-0163-ObengAkrofi.pdf), IEA SHC International Conference on Solar Heating and Cooling for Building and Industry.
6. Bernice Y. Danu, **Isaac Nkrumah**, Francis K. Ampong, Robert K. Nkum, Francis Boakye, 2016. Annealing-induced Phase Changes and Variations in the Optical Properties of CuS and CuSe thin films synthesized by the Chemical Bath Technique. *International Journal of Technical Research and Applications* Volume 4(3), 65-72
7. Bernice Y. Danu, **Isaac Nkrumah**, Francis K. Ampong, Robert K. Nkum, Francis Boakye, 2016. Annealing-induced Phase Changes and Variations in the Optical Properties of CuS and CuSe thin films synthesized by the Chemical Bath Technique. *International Journal of Technical Research and Applications* Volume 4(3), 65-72
8. Kofi Owusu-Sekyere, **Isaac Nkrumah**, R. K. Nkum and K. Singh, 2016. A Study of Optical Absorption of Polyanline Thin Films Prepared by Chemical Deposition (CBD) Method. *International Journal of Advanced Research in Engineering and Technology* Volume 7(2), 109-117.
9. Tizazu Abza, Francis Kofi Ampong, Fekadu Gashaw Hone, **Isaac Nkrumah**, Robert Kwame Nkum and Francis Boakye, 2016. The influence of deposition temperature on the structure and optical band gap of zinc sulphide thin films deposited from acidic chemical baths. *Elixir Condensed Matter Phys.*93, 39511-39514 39511
10. B. Kwakye-Awuah, E. Von-Kiti, **Isaac Nkrumah**, R. I. and C. Williams (2016) Parametric, Equilibrium, and Kinetic Study of the Removal of Salt Ions from Ghanaian Seawater by Adsorption onto Zeolite X. Desalination and Water Treatment, 1 – 6.
11. **I. Nkrumah**, F. K. Ampong, B. Kwakye-Awuah, T. Ive, 2015. Optical and Structural Properties of PbCdS Ternary Thin Films Deposited by Chemical Bath Deposition. Journal of Advances in Physics Vol. 11, No. 1, 2954-2959
12. A. A. Bamfo-Asante, **I. Nkrumah**, M. Paal, K. Singh, 2015**.** Effect of Deposition and Annealing Temperatures on optical band gap of SnO2 Thin films deposited on glass substrate by Chemical Vapour Deposition (CVD) Method.Volume 6, Issue 4, 9-16.
13. F. G. Hone, F. K. Ampong, **I. Nkrumah**, R. K. Nkum and F. Boakye, 2015. 2Effect of Annealing on the Structural, Morphological and Optical Band Gap of Nanocrystalline Cadmium Selenide Thin Films Synthesized by Chemical Bath Deposition Technique. Elixir Thin Film Tech. 84, 33486-33489
14. F. G. Hone, F. K. Ampong, T. Abza, **I. Nkrumah**, R. K. Nkum and F. Boakye, 2015. Synthesisand Characterization of CdSe Nanocrystalline Thin Film by Chemical Bath Deposition Technique**.**  International Journal of Thin Films Science and Technology 4 No. 2, 69-74.
15. F. G. Hone, F. K. Ampong, T. Abza, **I. Nkrumah**, M. Paal, R. K. Nkum, F. Boakye, 2015. The Effect of Deposition Time on the Structural, Morphological and Optical Bandgap of Lead Selenide Thin films Synthesized by Chemical Bath Deposition Method, Materials Letters155, 58–61.
16. F. K. Ampong, **I. Nkrumah**, R. K. Nkum and F. Boakye, 2014. Investigating the structure, morphology and optical band gap of Cadmium Sulphide thin films grown by Chemical Bath Deposition technique. International Journal of Technical Research and Applications e-ISSN: 2320-8163, Volume 2, Issue 6 (Nov-Dec 2014), PP. 91-93.
17. B. Kwakye-Awuah,L. Labik**, I. Nkrumah** and C. Williams 2014. Removal of Arsenic in River Water Samples Obtained From A Mining Community in Ghana Using Laboratory Synthesized Zeolites. International Journal of Advanced Scientific and Technical Research. Issue 4 Volume 4, PP. 304-315.
18. F. Gashaw, F. K. Ampong, T. Abza**, I. Nkrumah**, R. K. Nkum and F. Boakye 2014. Investigating the effect of deposition time on the morphology, structure andoptical band gap of PbS thin films synthesized by CBD technique.Elixir Thin Film Tech. 76 (2014) 28432-28436.
19. B. Kwakye-Awuah, L. K. Labik, **I. Nkrumah**, and C. Williams. 2014 Removal of ammonium ions by laboratory-synthesized zeolite linde type A adsorption from water samples affected by mining activities in Ghana. Journal of Water and Health 12.1 151-160
20. B. Kwakye-Awuah, E. Von-Kiti, R. Buamah, **I. Nkrumah**, C. Williams. 2014. Effect of Crystallization Time on the Hydrothermal Synthesis of Zeolites from Kaolin and Bauxite. International Journal of Scientific & Engineering Research, Volume 5, Issue 2. 734-741
21. **I. Nkrumah**, F.K. Ampong, B. Kwakye-Awuah, R.K. Nkum, F. Boakye. 2013. Synthesis and Characterization of ZnO Thin Films deposited by Chemical Bath Technique. IJRET: International Journal of Research in Engineering and Technology eISSN: 2319-1163 | pISSN: 2321-7308. 2-12. 809-812.
22. B. Kwakye-Awuah, A. Mrozik, Z. Piotrowska-Seget, **I. Nkrumah**, C. Williams, I. Radecka. 2013. Release Pattern of Ag+ ions from Silver-Loaded Zeolite X and its Subsequent Effect on Fatty Acid Composition of Bacterial Cells. International Journal of Innovative Research in Science, Engineering and Technology. Vol. 2, Issue 11. 6235-6244.
23. B. Kwakye-Awuah, D. D. Wemegah, **I. Nkrumah**, C. Williams, I. Radecka. 2013. Antimicrobial Activity of Silver-Zeolite LTA on Heavily-Contaminated Underground Ghanaian Waters. International Journal of Science and Research (IJSR) Volume 2 Issue 11. 26-31
24. B. Kwakye-Awuah, E. Von-Kiti, **I. Nkrumah**, and C. Williams. 2013. Towards the Zeolitization of Bauxite: Thermal Behaviour of Gibbsite in High-Alumina-Ghanaian Bauxite. International Journal of Engineering Research & Technology (IJERT) Vol. 2 Issue 10. 1290-1300.
25. B. Kwakye-Awuah, F. J. K. Adzabea, **I. Nkrumah** and C. Williams 2013. Application of Laboratory-Synthesized Ammonium Zeolite LTX as Soil Amendment Additive. International Journal of Sciences: Basic and Applied Research (IJSBAR). Volume 12, No 1, 67-81.

**Record of Service to the Community Since Employed**

University

1. 2015 to date Member, KNUST Solar Powered Traffic Light Committee
2. 2013 to date Member, College of Science Congregation Planning Committee

1. Feb. 2016 Guest Speaker, Science Students’ Association Week Celebration
2. Aug. 2015 Member, College of Science Central Fee-Paying Admissions

Committee, College of Science, KNUST.

1. 2014to date Examinations Centre Coordinator, College of Science, Kwame

Nkrumah University of Science and Technology, Kumasi

1. 2012 to date Examinations and Time Table officer ( Physics Programme)

Department of Physics, KNUST

1. May 2011 Member, Implementation Committee for Training Programme for

Technicians in KNUST, College of Science, KNUST

1. March 2011 Member of Committee of Proposal Between KNUST and Admin

Telecom Ghana Limited on Capacity Building and Training in the

Telecom Sector, Department of Physics, KNUST

1. March 2011 Member of Committee for Technicians Refresher Training

Programme, College of Science, KNUST

1. 2009 to date Academic Tutor, Department of Physics, KNUST

National

1. May 2016 Resource Person, Ghana Association of Science Teachers, Ashanti

Region, Physics Workshop

1. Jan. 2016 Resource Person for Annual Academic Workshop on How to Answer

Physics WASSCE Theory Questions, Kumasi High School, Kumasi

International

1. 2021- date Review, International Journal of Research and Innovation in Social

Sciences

1. 2019 to dateTeam Leader, West African Examination Centre (W.A.E.C.)

WASSCE Physics Paper 2

1. Feb. 2016 to date Reviewer, Journal of Advances in Physics (JAP)
2. 2014-to dateMember, Editorial Board, International Journal of Technical Research

and Application

1. 2010-2019Assistant Examiner, West African Examination Centre (W.A.E.C.)

WASSCE Physics Paper 2