

**STATEMENT OF MOTIVATION BY DR. JOSEPH K. AMOAKO, GHANA'S
NOMINEE FOR CONSIDERATION FOR IRPA COUNCIL: TERM 2020 TO 2024`**

Dr. Joseph K. Amoako is the Vice President for the Ghana Association for Radiation Protection (GARP), and a founding member of GARP. Dr. Amoako holds a Doctorate of Philosophy (PhD) in Radiation Physics, from the University of Cape Coast, Ghana and graduated in 2009. He is currently the Deputy Director / Chief Research Scientist of the Radiation Protection Institute of the Ghana Atomic Energy Commission.

With more than twenty (20) years of expertise and experience in radiation protection practice, and, education and training in Ghana and Africa. He helped formed African ALARA network (AFAN) and is the Secretary-Treasurer of the Network. He has undertaken several expert missions for the IAEA in Africa in Occupational Radiation Protection. He will no doubt contribute immensely to the deliberations of the IRPA Executive Council for the term 2020 to 2024.

GARP was formed in 2016 and was accepted by the Executive Council of the International Radiation Protection Association (IRPA) as an Affiliate of IRPA during the 14th International Radiation Protection Association Congress held, in Cape Town, South Africa, 09-13 May, 2016. GARP will host the next AFRIRPA 06 in 2022 in Accra, Ghana of which Dr Amoako is the Chairman local organizing committee.

As a Founding Member of GARP, Dr. Amoako believes in the objectives and purpose, for which GARP was set up, which include the following:

- GARP is a professional, non-profit organization whose objective and purpose is to advance radiation protection by promoting knowledge, information, and research and provide networking opportunities for professional in the field (or related fields).
- GARP activities include encouraging research in radiation science, developing standards, and disseminating radiation safety information.
- GARP members are involved in understanding, evaluating, and controlling the potential risks from radiation relative to the benefits.

He believes in the need for the academic discipline of radiation protection and safety, nuclear safety and security practice. For this reason, there must be well trained radiation protection professionals; be they researchers, service providers, manufacturers, regulators, or policy makers. In view of that, professionals must adopt the key primary principles of radiation protection, i.e. justification, optimization and dose limitation in their practice, which must be adhered to at all times in order to protect people and the environment.

Like all credible professional associations, Dr. Amoako believes that IRPA must position itself as a competent, unbiased, and highly knowledgeable organization. The expertise of IRPA as a body as well those of its Associate Societies, must be beyond doubt and reproach. In this regard, IRPA and all its Associate Societies must always instil a culture of excellence and sound ethical behaviour in the promotion of radiation protection principles.

Additionally, IRPA and its Associate Societies must continue and consistently look out for fruitful collaborations with other international and national organisations/associations to advance the promotion and practice of radiation protection world wide. It must also aspire to make a positive difference in all its undertakings.

Furthermore, it must have continual programmes and projects aimed at institutional renewal, where young talented members of IRPA and its Associate Societies. He is involved in the formation of National Network of Young Generation of Radiation Protection professional such as University students, radiographers, radiologist etc. This will ensure that radiation protection practice is sustainable in Africa.

Finally, Dr. Joseph K. Amoako wishes to be considered to represent the Africa Region on the IRPA Executive Council: Term 2020 to 2024. He is prepared to commit the necessary time and energy to deliver on these responsibilities required by the IRPA Executive Council, and more than willing to serve if elected.

CURRICULUM VITAE (ABRIDGED)

Personal Information

Full Name: Joseph Kwabena Amoako
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Nationality: Ghanaian

Educational Background

- UNIVERSITY OF CAPE COAST, GHANA
Doctorate of Philosophy (PhD) Radiation Physics [AUG 2004 - 2009]

- UNIVERSITY OF GHANA (UG), ACCRA-GHANA
Master of Philosophy (MPhil) Physics (Material Science/Solid State) [AUG 1992 - 1994]

- UNIVERSITY OF WITWATERSRAND JOHANNESBURG, SOUTH AFRICA
Post Graduate Diploma (PGDip. in Science) Radiation Protection [JUL 1999 – NOV 1999]

- UNIVERSITY OF CAPE COAST, GHANA
Bsc (Hons) Physics, Diploma in Education [1984 - 1988]

Other Professional Training

- Short Course On Project Cycle Management, Institute of Statistical Social and Economic Research, University of Ghana; 25th June -6th July, 2018

- IAEA Fellowship Training in Occupational Radiation Protection, Demokritos, Athens, Greece [FEB - APR 2009]

- Institute of Commercial Management (ICM), UK,
Certificate Training Course in Occupational Health and Safety Management [JUN – JUL 2011]

Employment Records

- **Chief Research Scientist**, Radiation Protection Institute, Ghana Atomic Energy Commission [30th January 2019 to present]

- **Deputy Director** , Radiation Protection Institute, Ghana Atomic Energy Commission [July 2016 to Present]

- **Manager**, Health Physics and Instrumentation Centre (RPI) [March 2011 to January 2016]

- **Principal Research Scientist**, Radiation Protection Institute, Ghana Atomic Energy Commission [January 2014 to Present]

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- **Senior Lecturer** (Part-time), Graduate School of Nuclear and Allied Sciences (SNAS), University of Ghana [2010 to Present]
 - Tutor/Counsellor, Institute of Educational Development and Extension of the University College of Education, Winneba, Ghana (Accra Centre) [1997 to Present]

Expert Mission/Activities for IAEA

- Consultancy Meeting to review the national dose registry system and discuss its application in the African region, Vienna 23-27 July 2018
- ILO/IAEA Meeting to finalize the training package for “Occupational Radiation Protection” and for "NORM RAS9080900401 Vienna, Austria 6 -10 March, 2017 – **Expert mission**
- IAEA Working Group Meeting to Establish the African Regional ALARA Network under RAF 9057, 10-12 October 2017 -**Expert mission**
- ORPAS Mission on Strengthening National Infrastructure for End-users to Comply with Regulations and Radiological Protection Requirements in Rabat, Morocco from 13 to 17 November, 2017. -**Expert mission**
- IAEA/ILO TC Regional Workshop on Occupational Radiation Protection-Implementing the International Basic Safety Standards , Antananarivo, Madagascar, 4 – 8 December 2017 – **Expert/Trainer**
- 14-20 March 2015: To develop the Project design RAF2014007 on Occupational Radiation protection for the IAEA (**Expert mission**)
- IAEA Regional Meeting on Workplace Monitoring RAF/9053/9014/01 8th – 12th November 2015, Cairo, Egypt (**Expert/Trainer**)

Expert Activities for Telecommunication Industry

- **2019:** Consultancy for the International Telecommunication Union (ITU) **Assessment Study of Electromagnetic field Regulation for Telecommunication/ICT Industry in West Africa**
- **2019:**
- 2009 – 2010: Member of Ministry of Environment, Science and Technology / Ministry of Communication Inter-Ministerial Technical Advisory Committee on Installation Mobile Phone Base stations (**Developed guidelines for installation of Telecommunication Mast in Ghana**)
- 2010 – 12: Member of Ghana Standard Technical Committee on Telecommunication/ICT systems (TC-24) (**Developed Standards for Telecommunication Systems including handset**)

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- 2012-2013: Member of the MOC Technical Committee on ICTs, Environment and Climate (**Developed Policy for Green ICT in Ghana**)
 - **2010 – Present:** Supervised the routine monitoring of Over 3000 mobile phone base stations in Ghana
 - **2010 – 2016:** Undertook public education on safety RF field in ten regions of Ghana in collaboration with Ghana Investment Fund for Electronic Communication

Expert Activities for Health Sector

- Since 2004 Safety Assessment of X-ray and MRI facilities in Ghana
- Since 2009: Testing of devices emitting Non-ionising radiation such as ELF UV, RF sources in Ghana
- Since 2004: Shielding calculation for X-ray diagnostic facilities Ghana
- Since 2010: Modelling of Temperature increases and induced field in Humans during MRI scan
- 2016- 2018: Training of radiographers in Radiation Protection and MRI safety in Ghana

Major Areas of Expertise

- Radiation Dosimetry
- Occupational Radiation Protection
- Non-ionising Radiation Protection
- Research into public exposure to RF radiation from mobile phone base stations and handsets in Ghana
- Medical Application of Ionising and Non-ionising Radiation

Skills

- Computational and Computer
- Teaching and Research
- Counselling and Coaching

Supervision of M.Phil and PhD Students Theses

PhD

2017-2018

- **Philip Deatanyah**, A Practical semi-empirical model, Measurement and analysis of radio-frequency Electromagnetic fields from radio-transmitters in Ghana (PhD Physics KNUST)

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- **Theresa Dery**, Validation Of Planned Radiation Absorbed Dose For Breast Cancer Patients Using Thermoluminescence And Radiochromic Film Dosimeters (UCC)
 - **Christiana Subar**, A Study To Determine Temperature Change In The Brain During Magnetic Resonance Imaging (UCC)
 - **Justices Awevor**, Evaluation of Absorbed Dose to Organs at Risk in the treatment of cervical cancer using the BEBIG Multisource high dose rate (HDR) brachytherapy treatment unit. (UCC)
 - **Collins Kafui-Azah**, Exposure of the Public to RF Fields in Multi-transmitter Environments

2016

- **W. K. Agbosu**, Environmental Impact of Mobile Telecommunication Technology in Ghana (A case study in Accra) (PhD Environmental Science, Legon); 2010-2015

M.Phil

- **Joshua Kalognia**, Assessment of levels of Occupational Exposure to Extremely Low Frequency Electric and Magnetic Fields in Data Centres in Accra, (M.Phil Radiation Protection, UG)
- **Kingsley Ahinkora**, Developing and Validation of Predicative Model for Radiofrequency Radiation within the vicinity of FM stations in Ghana (M.Phil Radiation Protection, UG)
- **Getrude Chinangwa**, Assessment and development of Personnel Monitoring program for Occupationally Exposed workers in Malawian hospitals; (M.Phil, Nuclear Science and Technology, UG)
- **Felix Tuokye**, Measurement Entrance Surface Dose with an Adult thoracic Anthropomorphic Phantom using Thermoluminescent Dosimeters and Estimation of Risk of Cancer Incidence (M.Phil Medical Physics)

2015

- **Samson Awini**, Assessment of Patient Doses during Digital Radiographic examination at the Tamale Teaching hospital,(M. Phil Radiation Protection, UG)
- **Hannah Mantebea**, Dose Estimation and Optimization for Paediatric Patient undergoing Fluroscopic guided procedures. (M.Phil Radiation Protection, UG)
- **Akilakpa Sawyerr**, Assessment of levels of Occupational Exposure to Magnetic fields and Ultraviolet radiations among welders in Greater Accra region-Ghana (M.Phil Radiation Protection,UG)
- **Ramat Hisseine Issa**, A comparative study of the performance characteristics of Optically Stimulated Dosimeters (OSLD) and Thermoluminescence Dosimeters (TLD), M.Phil Nuclear Science and Technology, UG)

2014

- **Christiana Subaar**, Thermal Effect of Magnetic Resonance Imaging on Sedated Paediatric Patients at Some Hospitals in Greater Accra Region (M.Phil Medical Physics)
- **George Atakpa**, Comparative Studies between Emissions from Roof top Antennae and Mast mounted Antennae of mobile phone base stations (M.Phil Radiation Protection)

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- **Samuel Obeng**; Comparative Studies Between The ITU-T Prediction Model for Radiofrequency Radiation Emission for Mobile Phone Base Stations and Real Time Measurements at Some Selected Cell Sites in Accra, Ghana (M.Phil Radiation Protection)

2013

- **Frempong Acheampong**, *Estimation of Induced E-M Fields and SAR in Patients Undergoing Magnetic Resonance Imaging (MRI) Spine Examinations at the 37 Military Hospital, Accra*, University of Ghana Postgraduate (M. Phil, Medical Physics) Project, 2013
- **John Jabati**, *Dose Profile and Uncertainty Analysis of Narrow Beam X-Ray and ^{137}Cs Collimated Source Used for Calibration at The Secondary Standard Dosimetry Laboratory in Ghana*, University of Ghana Postgraduate (M. Phil, Nuclear Science and Technology) Project, 2013
- **Michael Asabere Obeng**, *Long term Stability studies of the TLD 6600 reader used in personal monitoring in Ghana*, University of Ghana Postgraduate (M. Phil, Radiation Protection) Project, 2013
- **Thabang Candy Mokgosi**, *Estimation of Organ Doses and Risks from Personnel Monitoring Data*, University of Ghana Postgraduate (M. Phil, Nuclear Science and Technology Thesis) Project, 2013

2012

- **Mvoufo Fokou**, *Determination of Doses to Breast Cancer Patients during External Beam Radiotherapy Treatment at Korle Bu Teaching Hospital*, Ghana University of Ghana Postgraduate (M.Phil Nuclear Science and Technology Thesis) Project, 2012
- **Samuel Osei**, *Assessment of Levels of Occupational Exposure to Electromagnetic Fields to Workers in TV Stations in Accra – Ghana*, Ghana University of Ghana Postgraduate (M.Phil Radiation Protection Thesis) Project, 2012
- **Theresa Bebaaku Dery**, *Temperature Distributions in Brain Tissues of Patients Undergoing Magnetic Resonance Imaging (MRI) Examinations*, Ghana University of Ghana Postgraduate (M.Phil Medical Physics Protection Thesis) Project, 2012

2011

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- **Collins Kafui Azah**, *Assessment of Levels of Radio frequency Field within Vicinity of FM Radio Stations in Accra*, Ghana University of Ghana postgraduate (M.Phil Radiation Protection Thesis) Project, 2011

2010

- **Akomaning-Adofo**, *Assessment of Public and Occupational Exposure to ELF's within Vicinity of Electricity Transmission Substations in Greater Accra Region of Ghana*, University of Ghana postgraduate (M.Phil Radiation Protection Thesis) Project, 2010

Recent Publications

- P. Deatanyah, J. K. Amoako, E. K. K. Abavare and A. Menyeh
Analysis of Electric field strength and Power around selected mobile base stations
Radiation Protection Dosimetry (2018), Vol. 179, no. 4, pp. 383–390
- P. Deatanyah, E. K. K. Abavare, A. Menyeh and J. K. Amoako
Public Exposure to Multiple RF Sources in Ghana
Radiation Protection Dosimetry (2018), pp. 1–9
- Dery, TB, Amoako, JK, Buah-Bassuah, PK
Evaluation of Scanner Response with Radiochromic EBT3 Film in Radiation Therapy
Int J S Res Sci. Tech. 2018 Mar-Apr;4 (5) : 1646-1649
- Theresa Dery, Joseph Amoako, Paul Buah-Bassuah, William Osei-Mensah
Virtual Simulation of Co-60 Gamma Ray Beam Geometry
International Journal of Sciences: Basic and Applied Research (IJSBAR) (2018) Volume 38, No 2, pp 116-122
- C. K. Azah, J. K. Amoako and F. Sam
Spatial Distribution of Electric Field Strength at a Teaching Hospital Premises due to Transmissions between 87.5 MHz and 2.6 GHz
Radiation Protection Dosimetry (2018), pp. 1–7 : doi:10.1093/rpd/ncy124
- F. Otoo, E.O. Darko, M. Garavaglia, C. Giovani, S. Pividore, A.B. Andam, J.K. Amoako, O.K. Adukpo, J.B. Tandoh and S. Inkoom
Seasonal Indoor Radon studies in buildings of Accra Metropolis of Greater Accra region of Ghana
Radioprotection 2018 <https://doi.org/10.1051/radiopro/2018023>
- C. Subaar, J.K. Amoako , A. Owusu , J.J. Fletcher , J. Suurbaar (2017)

Numerical studies of radiofrequency of the electromagnetic radiation power absorption in paediatrics undergoing brain magnetic resonance imaging; *Journal of Radiation Research and Applied Sciences* 10 188-193

- P. Ondo Meye, C. Schandorf, J.K. Amoako, P.O. Manteaw, E.A. Amoatey and D.N. Adjei (2017), Intercomparison on the measurement Of the quantity personal dose equivalent $h_p(10)$ In photon fields. Linearity dependence, lower limit of detection and uncertainty in measurement Of dosimetry systems of individual Monitoring services in Gabon and Ghana; *Radiation Protection Dosimetry* , pp. 1–11
- Gertrude Chinangwa, Joseph K. Amoako, John J. Fletcher, 2017. “Radiation dose assessment for occupationally exposed workers in Malawi” *Malawi Medical Journal* 29 (3), 254-258
- Aggrey-Smith, S., Preko, K., Owusu, F.W. and J. K. Amoako (2016). Study of Radiation Shielding Properties of selected Tropical Wood Species for X-rays in the 50-150 keV Range *Journal of Science and Technology* Vol. 4 (2016), 8 pp
- Osei, S.; Amoako J. K., and Fletcher, J. J.; Assessment of Levels of Occupational exposure to RF to workers of two TV stations in Accra, Ghana, *Radiation Protection Dosimetry, Advance Access May 15, 2015*
- C. Subaar, J. K. Amoako, E.O. Darko, T. Ansah-Narh and T. B. Dery, “Finite Difference Time Domain Approach of Thermal Effects on Paediatric Patients Undergoing Magnetic Resonance Imaging in Ghana”, *Research Journal in Engineering and Applied Sciences (RJEAS)*, 2014; 3(2): 93-97
- Mvoufo, F., Amoako, J. K., Schandorf, C., Tagoe, S. N., and Dery, T.B., “Determination of Doses to Breast Cancer Patients during EBRT at KBTH”, *Journal of American Science* 2014; 10(1):108-111
- C. K Azah, J. K. Amoako and J. J. Fletcher, “Levels of Electric Field Strength Within the Immediate Vicinity of FM Radio Stations in Accra, Ghana”, *Radiation Protection Dosimetry, Advance Access April 13, 2013*
- D. Adjei, E. O. Darko, J. K. Annkah, J. K. Amoako, K. Ofori, G. Emi-Reynolds, M. K. Obeng, E. Akomaning-Adofo and P. Owusu-Manteaw, “Analysis Of Calibration Results of Radiation Survey Meters Used For Area Monitoring”, *Radiation Protection Dosimetry, Advance Access April 7, 2013*
- T.C. Mokgosi, E. O. Darko, J.K. Amoako, P. O. Manteaw, and T. Ansah – Narh, “Bayesian Estimation Of Organ Doses And Risks From Personnel Monitoring Data In Ghana”, *Research Journal in Engineering and Applied Sciences (RJEAS)*, 2013; 2(4):292-297
- P. Deatanyah, J.K. Amoako, J.J. Fletcher · G.O. Asiedu, D.N. Adjei, G.O. Deapanyin, E.A. Amoatey, “Assessment of Radio Frequency Radiation within Vicinity of Some GSM Base Stations in Ghana”, *Radiation Protection Dosimetry, January 18, 2012*

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- Deatanyah, Emi-Reynolds, G., Amoako, J. K., Arwui, C. C., Wortochi-Gordon, S., Lawluvi, H., Kpeglo, D. O. and Annkah, J., “Evaluation of Biological Shields of the secondary standards Dosimetry laboratory of Ghana using MCNP5”, *Research Journal of Applied Sciences, Engineering and Technology*, 2012; 4(6): 544 – 550
 - J.K. Annkah, E.O. Darko, J.K. Amoako, G. Emi-Reynolds, M.K. Obeng and G. Royle, “Preliminary Investigations of the Contribution of Scatter Radiation During Calibration of TLD-100 Using a Cs-137 Panoramic Source”, *Research Journal of Applied Sciences, Engineering and Technology*, September 2011; 3(9):874-879

Membership of Professional Body(ies)

- Ghana Association of Radiation Protection,
- International Radiation Protection Association,
- Ghana Institute of Physics,