

# KOFI OWURA AMOABENG (PhD)

## PERSONAL DETAILS

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**Address:** C/o Mavis Adomah Amoabeng, Bank of Ghana, P. O. Box GP 2674, Accra.

**Date of Birth:** September 7, 1984

**Email:** koamoabeng@gmail.com

**Telephone No:** +233-246-803123, +233-243-351847

**Marital Status:** Married

**Nationality:** Ghana

## OBJECTIVE

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To pursue a career in any organization that offers opportunities for utilizing my learning experience, educational qualifications and skills in research and development towards the growth of the organization.

## EDUCATION

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<b>Doctor of Philosophy (PhD) in Mechanical Engineering</b>	Mar., 2015 – Aug., 2019
Hanbat National University (HNU), Daejeon, South Korea	
<b>Master of Science (MSc) in Mechanical Engineering</b>	Aug., 2010 – Jun., 2012
Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana	
<b>Bachelor of Science (BSc) in Mechanical Engineering</b>	Aug., 2004 – Jun., 2008
Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana	
<b>Senior High School Education</b>	Aug., 2001 – Jul., 2003
Konongo-Odumase Senior High School (KOSS), Konongo, Ghana	

## ACADEMIC EXPERIENCE

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<b>Research Assistant</b>	May, 2015 – Jun., 2019
Department of Mechanical Eng., Hanbat National University.	
<ul style="list-style-type: none"> <li>▪ Researching in design and analysis of novel technologies in heating, refrigeration and air conditioning systems.</li> <li>▪ Conference presentations on energy efficient heat pumps, refrigeration and air conditioning systems.</li> <li>▪ Assisting undergraduate students to undertake laboratory experiments in refrigeration and air conditioning technology.</li> </ul>	
<b>Facilitator, Institute of Distance Learning (IDL)</b>	Aug., 2011– Jun., 2012
Department of Mechanical Eng., Kwame Nkrumah University of Science and Technology	
<ul style="list-style-type: none"> <li>▪ Lecturing in Thermodynamics II (ME 365); Heat Transfer (ME 366).</li> </ul>	
<b>Demonstrator</b>	Aug., 2010 – Jun., 2012
Department of Mechanical Eng., Kwame Nkrumah University of Science and Technology	
<ul style="list-style-type: none"> <li>▪ Assisting lecturers in Thermodynamics II (ME 365); Heat transfer (ME 366); Renewable Energy Conversion (ME 466); Internal Combustion Engines (ME 467); Refrigeration and Air-Conditioning (ME 465).</li> </ul>	

**ACADEMIC EXPERIENCE CONTD.**

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**National Service Personnel**

Sep., 2008 – Jul, 2009

Department of Mechanical Eng., Kwame Nkrumah University of Science and Technology

- Conducting tutorial lessons for undergraduate students in thermodynamics, heat transfer, refrigeration and air conditioning, internal combustion engines, renewable energy and fluid mechanics courses.
- Supervising mechanical engineering students in laboratory experiments.
- Assisting the KNUST Energy Center to organize short courses in renewable energy.

**TEACHING AREAS OF INTEREST**

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|-------------------------------------|--------------------------------------|
| ▪ Thermal Systems Engineering       | ▪ Air Conditioning and Refrigeration |
| ▪ Renewable Energy                  | ▪ Internal Combustion Engines        |
| ▪ Mechanics of Solids and Materials | ▪ Engineering Drawing                |

**RESEARCH AREAS OF INTEREST**

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| ▪ Refrigeration and Air Conditioning Systems  | ▪ Heat Recovery Technologies             |
| ▪ Thermal Energy Storage and Power Generation | ▪ Building Energy Performance Evaluation |
| ▪ Energy Management and Efficiency            | ▪ Heat Pump Systems                      |
| ▪ Renewable Energy                            | ▪ Machine Learning                       |

**RESEARCH EXPERIENCE**

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**Postgraduate (PhD) Research**

Mar., 2015 – Aug., 2019

Advanced Energy and Environmental Research Lab.

Department of Mechanical Eng., Hanbat National University

Contribution to multidisciplinary research projects on energy efficiency technologies for heating and cooling such as;

- Investigation on the performance characteristics of the heat pump calorimeter.
- Design and performance analysis of a novel calorimeter for testing heat pumps.
- Energy evaluation of existing cooling systems in data centers.
- Development of an energy efficient cooling technology for internet data centers.
- Performance evaluation methodology for geothermal heat pump systems.

**Postgraduate (MSc) Research**

Aug., 2010 – Jun., 2012

Thermal and Energy Systems Engineering

Department of Mechanical Eng., Kwame Nkrumah University of Science and Technology

- Research project on thermal and economic performance assessment of a solar water heating system.

## JOURNAL PUBLICATIONS

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Andoh, P. Y., Ayetor, G. K. K., **Amoabeng, K. O.**, Sackey, M. N. *Assessment of automobile engines rebuilt at local artisan workshops in Ghana*. Journal of Applied Engineering and Technological Science (2022), 3 (2); 53-66.

Abdulahadi, A., Opoku, R., Sekyere, C. K. K., Boahen, S., **Amoabeng, K. O.**, Uba, F., Obeng, G. Y., Forson, F. K. *Experimental investigation of thermal management techniques for improving the efficiencies and leveled cost of energy of solar PV modules*. Case Studies in Thermal Engineering (2022), 35, 2022

**Amoabeng, K. O.**, Opoku, R., Boahen, S., Obeng, G. Y. *Analysis of indoor set-point temperature of split-type ACs on thermal comfort and energy savings for office buildings in hot-humid climates*. Energy and Built Environment (2022).  
<https://doi.org/10.1016/j.enbenv.2022.02.006>

**Amoabeng, K. O.**, Lee, K. H., Choi, J. M. *Performance investigation of a novel calorimeter for a heat pump system according to flow loops*. Journal of Mechanical Science and Technology (2020), 34; 1749-1763. Doi.org/10.3390/en12234589.

**Amoabeng, K. O.**, Lee, K. H., Choi, J. M. *Modeling and simulation performance evaluation of a proposed calorimeter for testing a heat pump system*. Energies (2019), Vol. 12, No. 4589, 23 pages. Doi.org/10.3390/en12234589.

Mensah, K., **Amoabeng, K. O.**, Apraku, D., Intsiful, J., Boahen, S. *Prospects of ground source heat pump for space cooling in Ghana*. International Journal of Recent Scientific Research (2019), Vol. 10, Issue (11), 36059-36067. Doi: 10.24327/IJRSR.

**Amoabeng, K. O.**, Choi, J. M. *Performance analysis on the optimum control of a calorimeter with a heat recovery unit for a heat pump*. Energies (2018), Vol. 11, No. 2210, 20 pages. Doi.org/10.3390/en11092210.

**Amoabeng, K. O.**, Lee, K. H., Choi, J. M. *A study on the performance characteristics of a testing facility for a water-to-water heat pump*. International Journal of Refrigeration (2018) Vol. 86, 113-126. Doi.org/10.1016/j.ijrefrig.2017.11.013.

**Amoabeng, K. O.**, Choi, J. M. *A study on the performance of a newly designed heat pump calorimeter*. Applied Thermal Engineering (2017) Vol. 123, 216-225. Doi.org/10.1016/j.applthermaleng.2017.05.029.

**Amoabeng, K. O.**, Choi, J. M. *Review on cooling system energy consumption in internet data centers*. International Journal of Air Conditioning and Refrigeration (2016) Vol. 24, No. 4 (1630008), 17 pages. Doi.org/10.1142/S2010132516300081.

## CONFERENCE PRESENTATIONS/ PUBLICATIONS

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**Amoabeng, O. K.**, Boahen, S., Choi, J. M., (November, 2018). *Energy performance investigation of a calorimeter for heat pump measurement*. Society of Air conditioning and Refrigeration Engineers in Korea (SAREK) conference, Seoul, Korea. Paper No. W-116, 437-439.

**Amoabeng, O. K.**, Mensah, K., Boahen, S., Lee, K. H., Choi, J. M., (June, 2018). *Calculation Method for Estimating the Performance of a Geothermal Heat Pump*. Society of Air conditioning and Refrigeration Engineers in Korea (SAREK) conference, Yongpyong, Korea. Paper No. S-203, 797-798.

**Amoabeng, O. K.**, Mensah, K., Boahen, S., (May, 2018). *A Study on the Energy Performance of a Variable Air Volume System Using Air-Cooled and Water-Cooled Chiller*. Proceedings of 2<sup>nd</sup> GHASKA Innovation Conference (GIC), Daejeon, Korea. Paper No. EAS-001, 29-32.

**Amoabeng, O. K.**, Lee, K. H., Choi, J. M., (November, 2017). *Annual Performance Estimation for a Geothermal Heat Pump*. Proceedings of 7<sup>th</sup> Asia-Pacific Forum on Renewable Energy (AFORE), Busan, Korea. Paper No. GE-004, 43.

**Amoabeng, O. K.**, Boahen, S., Lee, K. H., Choi, J. M., (June, 2017). *Improving the Energy Efficiency of Heat Pump Performance Evaluation System*. Society of Air conditioning and Refrigeration Engineers in Korea (SAREK) conference, Yongpyong, Korea. 21-23.

**Amoabeng, O. K.**, Choi, J. M., (May, 2017). *Development of an Efficient Cooling System for Data Centers*. Proceedings of 1<sup>st</sup> GHASKA Innovation Conference (GIC), Suwon, Korea. Paper No. EAS-004, 43-45.

**Amoabeng, O. K.**, Boahen, S., Jang, H. B., Choi, J. M., (June, 2016). *An Energy Consumption Analysis of the Performance Test Facility for Heat Pump*. Society of Air conditioning and Refrigeration Engineers in Korea (SAREK) conference, Yongpyong, Korea. 580-581.

## INDUSTRIAL EXPERIENCE

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**Aboadze Thermal Power Plant** May, 2011

- To investigate the various stages of thermal power generation in the plants.

**Ghana Water Company Limited** Sep., 2010

- To examine the operation of the various pumps used in the water distribution station.

**Juaben Oil Mills Limited** May, 2006

- To inspect and diagnose faults on the various machines in the palm nut processing plant.

## MEMBERSHIP IN ACADEMIC/PROFESSIONAL ASSOCIATIONS

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**Conference Membership** Apr., 2016 – Jun., 2019

- African Development Forum on Innovation and Partnership
- Asian Conference on Refrigeration and Air-Conditioning (ACRA)
- Asian-Pacific Forum on Renewable Energy (AFORE)
- Ghanaian Students in Korea and Associates (GHASKA) Innovation Conference (GIC)
- International Conference of Saving Energy in Refrigeration and Air-Conditioning (ICSERA)
- Korea Society of Mechanical Engineers (KSME)
- Society of Air-Conditioning and Refrigeration Engineers of Korea (SAREK)

## REFEREES

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**Jong Min CHOI, Ph.D.**

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**Director, Institute of Advanced Energy and Environmental Research**

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**Francis Kofi FORSON, Ph.D.***Professor, Department of Mechanical Engineering****Researcher in Solar Crop Drying Technology****Kwame Nkrumah University of Science and Technology*

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