# Prof. Gabriel Takyi

Department of Mechanical Engineering
Kwame Nkrumah University of Science and Technology

ORCID 0000-0002-7139-8496 · Profile knust.peerford.com/staff/164ed582-eb83-40e8-af96-55880bab5c0b

## RESEARCH

Areas: Electrical and Electronic Engineering · Renewable Energy, Sustainability and the Environment · Mechanical Engineering · Artificial Intelligence · Aerospace Engineering · Environmental Engineering

## RESEARCH SUMMARY

| 31 | 350 | 10 | 10 | 0.49 | 0% |
|---|---|---|---|---|---|
| Publications | Citations | h-index | i10-index | Field-weighted impact | World top 10% |

Counted from the 31 publications listed below, 2007–2024. Field-weighted impact is the mean over the 31 works scored for it; 1.00 is the world average for works of the same field, type and year. 0 of the 31 papers scored for it are among the world's most cited tenth for their field, type and year.

## POSITIONS

**Kwame Nkrumah University of Science and Technology**
Kumasi, Ghana

## EDUCATION AND QUALIFICATIONS

**University of Salford**
Salford, United Kingdom

## PUBLICATIONS

### Journal articles 28

1. Obed Ofori Yemoh, Richard Opoku, **Gabriel Takyi**, Ernest Kwadwo Adomako, Felix Uba, George Obeng (2024). Green building adaptation in hot-humid climates: assessment of coconut and corn husk fiber composite bricks as energy-efficient building envelopes. *International Journal of Building Pathology and Adaptation*. https://doi.org/10.1108/ijbpa-11-2022-0178
2. **Gabriel Takyi**, Odai Godlove Laryea (2021). Comparative study of the performance of solar photovoltaic module technologies installed in Kumasi, Ghana, in Sub-Saharan Africa. *Scientific African*. https://doi.org/10.1016/j.sciaf.2021.e00877
3. Frank Kwabena Afriyie Nyarko, **Gabriel Takyi**, Anthony Agyei Agyemang, Charles Kofi Kafui Sekyere (2021). Crystalline Silicon (c-Si) Solar Cell Interconnect Damage Prediction Function Based on Effect of Temperature Ramps and Dwells on Creep Damage under Field Thermal Cycling. *Crystals*. https://doi.org/10.3390/cryst11060633
4. Frank K.A. Nyarko, **G. Takyi**, F.B. Effah (2021). Impact of the constitutive behaviour of the encapsulant on thermo-mechanical damage in (c-Si) solar PV modules under thermal cycling. *Scientific African*. https://doi.org/10.1016/j.sciaf.2021.e00767
5. J.K. Hatsu, A.K. Sunnu, G.K. Ayetor, **G. Takyi** (2021). Investigation of shell mold casting technique in Ghana using indigenous materials. *Scientific African*. https://doi.org/10.1016/j.sciaf.2021.e01052
6. Frank Kwabena Afriyie Nyarko, **G. Takyi** (2021). Life prediction in c-Si solar cell interconnections under in-situ thermal cycling in Kumasi in Ghana. *Soldering and Surface Mount Technology*. https://doi.org/10.1108/

ssmt-10-2020-0045

7. Armstrong Okai Ababio, **Gabriel Takyi**, Emmanuel Kwaku Anto (2021). Optimum Sizing and Siting of an Embedded Solar Photovoltaic Generation: A Case Study of 33 kv Sub-Transmission Network at Tarkwa, Ghana. *Journal of Power and Energy Engineering*. https://doi.org/10.4236/jpee.2021.93001
8. **G. Takyi** (2021). Performance characterization of polycrystalline silicon photovoltaic modules installed in Kumasi, Ghana. *Nigerian Journal of Technology*. https://doi.org/10.4314/njt.v40i3.12
9. Charles K.K. Sekyere, Francis Davis, Richard Opoku, Edward Otoo, **Gabriel Takyi**, Lawrence Atepor (2021). Performance evaluation of a 20 MW grid-coupled solar park located in the southern oceanic environment of Ghana. *Cleaner Engineering and Technology*. https://doi.org/10.1016/j.clet.2021.100273
10. **G. Takyi**, A.S. Adunyah, A. Agyei-Agyemang (2021). Performance evaluation of monocrystalline and polycrystalline silicon solar photovoltaic modules under low and high irradiance conditions in Kumasi, Ghana. *Nigerian Journal of Technology*. https://doi.org/10.4314/njt.v40i3.8
11. Frank Kwabena Afriyie Nyarko, **Gabriel Takyi**, Francis Boafo Effah (2021). Study on Creep Damage in Sn60Pb40 and Sn3.8Ag0.7Cu (Lead-Free) Solders in c-Si Solar PV Cell Interconnections under In-Situ Thermal Cycling in Ghana. *Crystals*. https://doi.org/10.3390/cryst11040441
12. David A. Quansah, Muyiwa S. Adaramola, **Gabriel Takyi** (2020). Degradation and longevity of solar photovoltaic modules—An analysis of recent field studies in Ghana. *Energy Science & Engineering*. https://doi.org/10.1002/ese3.651
13. **Gabriel Takyi**, Frank Kwabena Nyarko (2020). Investigation of the Effect of Temperature Coefficients on Mono-Crystalline Silicon PV Module Installed in Kumasi, Ghana. *Journal of Power and Energy Engineering*. https://doi.org/10.4236/jpee.2020.89003
14. Frank K.A. Nyarko, **G. Takyi**, Emeka H. Amalu (2020). Robust crystalline silicon photovoltaic module (c-Si PVM) for the tropical climate: Future facing the technology. *Scientific African*. https://doi.org/10.1016/j.sciaf.2020.e00359
15. Frank K.A. Nyarko, **G. Takyi**, Emeka H. Amalu, Muyiwa S. Adaramola (2018). Generating temperature cycle profile from in-situ climatic condition for accurate prediction of thermo-mechanical degradation of c-Si photovoltaic module. *Engineering Science and Technology an International Journal*. https://doi.org/10.1016/j.jestch.2018.12.007
16. **Gabriel Takyi** (2017). Correlation of Infrared Thermal Imaging Results with Visual Inspection and Current-Voltage Data of PV Modules Installed in Kumasi, a Hot, Humid Region of Sub-Saharan Africa. *Technologies*. https://doi.org/10.3390/technologies5040067
17. David Quansah, Muyiwa Adaramola, **Gabriel Takyi**, Isaac Edwin (2017). Reliability and Degradation of Solar PV Modules—Case Study of 19-Year-Old Polycrystalline Modules in Ghana. *Technologies*. https://doi.org/10.3390/technologies5020022
18. Peter K. Bernasko, Sabuj Mallik, **G. Takyi** (2015). Effect of intermetallic compound layer thickness on the shear strength of 1206 chip resistor solder joint. *Soldering and Surface Mount Technology*. https://doi.org/10.1108/ssmt-07-2013-0019
19. **Gabriel Takyi** (2015). Investigation of Wettability of Lead Free-Solder on Bare Copper and Organic Solder Preservatives Surface Finishes. *International Journal of Materials Science and Applications*. https://doi.org/10.11648/j.ijmsa.20150403.14
20. **Gabriel Takyi** (2015). Optimisation of Reflow Profile of Surface Mount Assembly Using Taguchi Design of Experiments. *Science Research*. https://doi.org/10.11648/j.sr.20150304.13
21. Emeka H. Amalu, N.N. Ekere, M.T. Zarmai, **G. Takyi** (2015). Optimisation of thermo-fatigue reliability of solder joints in surface mount resistor assembly using Taguchi method. *Finite Elements in Analysis and Design*. https://doi.org/10.1016/j.finel.2015.08.004
22. Sabuj Mallik, Jude Njoku, **Gabriel Takyi** (2015). Quantitative Evaluation of Voids in Lead Free Solder Joints. *Applied Mechanics and Materials*. https://doi.org/10.4028/www.scientific.net/amm.772.284
23. **Gabriel Takyi**, Peter K. Bernasko (2014). The Effects of Reflow Profile Parameters on Sn-Ag-Cu Solder Bumps and Cu Substrate Using Full Factorial Design. *Journal of Surface Mount Technology*. https://doi.org/

10.37665/jsmtwtaht68476

24. E.H. Amalu, W.K. Lau, N.N. Ekere, R.S. Bhatti, S. Mallik, K.C. Otiaba, **G. Takyi** (2011). A study of SnAgCu solder paste transfer efficiency and effects of optimal reflow profile on solder deposits. *Microelectronic Engineering*. https://doi.org/10.1016/j.mee.2011.02.104
25. **G. Takyi**, E.H. Amalu, P.K. Bernasko (2011). Effect of solder joint integrity on the thermal performance of a TEC for a 980 nm pump laser module. *Soldering and Surface Mount Technology*. https://doi.org/10.1108/09540911111120186
26. E.H. Amalu, N.N. Ekere, R.S. Bhatti, S. Mallik, **G. Takyi**, Akii Okonigbon Akaehomen Ibhadode (2011). Numerical Investigation of Thermo-Mechanical Behaviour of Ball Grid Array Solder Joint at High Temperature Excursion. *Advanced materials research*. https://doi.org/10.4028/www.scientific.net/amr.367.287
27. **G. Takyi**, N.N. Ekere (2010). Investigation of the effect of nitrogen and air atmospheres on solder wettability of plasma-treated HASL finish PCBs. *Soldering and Surface Mount Technology*. https://doi.org/10.1108/09540911011054154
28. **G. Takyi**, N.N. Ekere (2010). Study of the effects of PCB surface finish on plasma process time for lead-free wave soldering. *Soldering and Surface Mount Technology*. https://doi.org/10.1108/09540911011036271

### Conference papers 3

1. E. H. Amalu, Y. T. Lui, N. N. Ekere, R. S. Bhatti, **G. Takyi**, Francisco Chinesta, Yvan Chastel, Mohamed El Mansori (2011). Investigation Of The Effects Of Reflow Profile Parameters On Lead-free Solder Bump Volumes And Joint Integrity. *AIP conference proceedings*. https://doi.org/10.1063/1.3552519
2. P.K. Bernasko, S. Mallik, N.N. Ekere, A. Seman, **G. Takyi** (2009). Effect of reflow profile and thermal cycle ageing on the intermetallic formation and growth in lead-free soldering. https://doi.org/10.1109/eptc.2009.5416398
3. **G. Takyi**, C. Beesley, A. Kendal, R. Baettig (2007). Characterisation of 980nm Pump Laser Solder Joint Integrity Using Heat Pump Tests. *IEEE/CPMT International Electronics Manufacturing Technology Symposium*. https://doi.org/10.1109/iemt.2007.4417070