Mark Adom-Asamoah

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PROFILE

Mark Adom-Asamoah is the Provost of the College of Engineering at the Kwame Nkrumah University of Science and Technology, Kumasi. He is a past Dean of the Faculty of Civil and Geo-Engineering and Head of the Department of Petroleum Engineering. He is a Fulbright Senior Research Fellow, Commonwealth Scholar and British Council Scholar. He was a visiting scholar at the University of Bristol, UK and Arizona State University, USA.

His research interests are behavior of local civil engineering materials and seismic behavior of low-medium seismic regions.

RESEARCH

Interests	Structural Materials · Earthquake Engineering · RC beam-column joint behaviour · Progressive Collapse
Areas	Civil and Structural Engineering · Building and Construction · Plant Science · Polymers and Plastics · Biomaterials · Electronic, Optical and Magnetic Materials

RESEARCH SUMMARY

76	734	16	24	1.33	15%
Publications	Citations	h-index	i10-index	Field-weighted impact	World top 10%

Counted from the 76 publications listed below, 2002–2026. Field-weighted impact is the mean over the 33 works scored for it; 1.00 is the world average for works of the same field, type and year. 5 of the 33 papers scored for it are among the world's most cited tenth for their field, type and year.

POSITIONS

Provost/Professor 2016–2022
Civil Engineering, Kwame Nkrumah University of Science and Technology College of Engineering, Kumasi, Ghana

EDUCATION AND QUALIFICATIONS

PhD in Civil Engineering 2000–2004
Civil Engineering, University of Bristol, Bristol, United Kingdom

MSc Structural Steel Design 1994–1995
Civil Engineering, Imperial College London Faculty of Engineering, London, United Kingdom

BSc (Hons) Eng 1989–1993
Civil Engineering, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

PUBLICATIONS

Journal articles 60

1. Kwadwo Adinkrah-Appiah, **Mark Adom-Asamoah**, Russell Owusu Afrifa, Sampson Assiamah, Jacqueline Obeng (2026). The influence of palm kernel shell on the shear behaviour of reinforced concrete deep beams. *Discover Civil Engineering*. https://doi.org/10.1007/s44290-026-00453-7
2. Joshua Atta Alabi, Neda Nazari, Daniel Nframah Ampong, Frank Ofori Agyemang, **Mark Adom-Asamoah**, Richard Opoku, Rene Zahrhuber, Christoph Unterweger, Kwadwo Mensah-Darkwa (2025). Synthesis of Physically Activated Carbons from Vitellaria paradoxa Shells for Supercapacitor Electrode Applications. *Inorganics*. https://doi.org/10.3390/inorganics13070224
3. Jacqueline Obeng, Anthony Andrews, **Mark Adom-Asamoah**, Jones Owusu-Twumasi (2024). Bond behavior of reinforcing steel bars in metakaolin – calcium carbide residue-based geopolymer concrete. *Engineering Research Express*. https://doi.org/10.1088/2631-8695/ad722b
4. A Andrews, **M Adom-Asamoah**, S Adjei (2024). Optimizing Physical and Mechanical Properties of Metakaolin and Calcium Carbide Residue–Geopolymer Concrete Using the Taguchi Method. *Journal of Materials Science Research and Reviews*. https://hal.science/hal-05127764/
5. Jallow Alieu, Jones Owusu Twumasi, Russel Owusu Afrifa, Evans Amponsah, Jack Banahene Osei, **Mark Adom-Asamoah**, Charles (2024). Rice Husk Ash as Partial Replacement of Cement in Sustainable Construction. *Journal of Science and Technology (Ghana)*. https://doi.org/10.4314/just.v1i1.2s
6. Jack Banahene Osei, **Mark Adom-Asamoah**, Jones Owusu Twumasi, Peter Andras, Hexin Zhang (2023). A machine learning-based structural load estimation model for shear-critical RC beams and slabs using multifractal analysis. *Construction and Building Materials*. https://doi.org/10.1016/j.conbuildmat.2023.132250
7. Jacqueline Obeng, Anthony Andrews, **Mark Adom-Asamoah**, Stephen Adjei (2023). Effect of calcium carbide residue on the sulphate resistance of metakaolin-based geopolymer mortars. *Cleaner Materials*. https://doi.org/10.1016/j.clema.2023.100177
8. Alex Apeagyei, Toyosi Elijah Ademolake, **Mark Adom-Asamoah** (2023). Evaluation of deep learning models for classification of asphalt pavement distresses. *International Journal of Pavement Engineering*. https://doi.org/10.1080/10298436.2023.2180641
9. Yu Deng, Zhen Guo, Hexin Zhang, Suchart Limkatanyu, Piti Sukontasukkul, Terry Y.P. Yuen, Simon H.F. Wong, Chayanon Hansapinyo, **Mark Adom-Asamoah**, Minhe Shen, Longting Huang, J.S. Kuang, Yiqing Zou (2023). Experimental study on flexural behaviours of fresh or aged hollow reinforced concrete girders strengthened by prestressed CFRP plates. *Engineering Structures*. https://doi.org/10.1016/j.engstruct.2023.116776
10. Yu Deng, Daoyuan Ling, Zhen Guo, Piti Sukontasukkul, Terry Y.P. Yuen, Simon H.F. Wong, **Mark Adom-Asamoah**, Suchart Limkatanyu, Chayanon Hansapinyo, Jack Banahene Osei, Jones Owusu-Twumasi, J.S. Kuang, Hexin Zhang (2023). Strain driven mode-switching analytical framework for estimating flexural strength of RC box girders strengthened by prestressed CFRP plates with experimental validation. *Engineering Structures*. https://doi.org/10.1016/j.engstruct.2023.116084
11. Eugene Sefa Appiah, Perseverance Dzikunu, Nashiru Mahadeen, Daniel Nframah Ampong, Kwadwo Mensah-Darkwa, Anuj Kumar, Ram K. Gupta, **Mark Adom-Asamoah** (2022). Biopolymers-Derived Materials for Supercapacitors: Recent Trends, Challenges, and Future Prospects. *Molecules*. https://doi.org/10.3390/molecules27196556
12. Eugene Sefa Appiah, Kwadwo Mensah-Darkwa, Frank Ofori Agyemang, Phillip Agbo, Mahadeen N. Nashiru, Anthony Andrews, **Mark Adom-Asamoah** (2022). Performance evaluation of waste tyre-activated carbon as a hybrid supercapacitor electrode. *Materials Chemistry and Physics*. https://doi.org/10.1016/j.matchemphys.2022.126476
13. Anthony Andrews, Edward F. Nyarko, Albert A. Adjaottor, Elsie Nsiah-Baafi, **Mark Adom-Asamoah** (2022). Reuse and stabilization of sulphide mine tailings as fine aggregate for construction mortar. *Journal of*

Cleaner Production. https://doi.org/10.1016/j.jclepro.2022.131971

14. JB Osei, **M Adom-Asamoah** (2019). AGGREGATE INDEX: A MEASURE FOR CALIBRATING SHEAR STRENGTH MODELS FOR DIRECT APPLICATION TO SELF-CONSOLIDATING CONCRETE BEAMS. *ARPN Journal of Engineering and Applied Sciences*.
15. Eri, Geraldo De-Lima, Osei, Jack Banahene, **Adom-Asamoah, Mark** (2019). Behaviour of Bamboo Reinforced Concrete Beams With 100% Recycled Coarse Aggregate. *Zenodo (CERN European Organization for Nuclear Research)*. https://doi.org/10.5281/zenodo.2543482
16. **Mark Adom-Asamoah**, Jack Banahene Osei (2018). A comparative seismic fragility analysis of a multi and single component beam-column joint models. *Cogent Engineering*. https://doi.org/10.1080/23311916.2018.1426204
17. JB Osei, **M Adom-Asamoah** (2018). Average spectral acceleration: Ground motion duration evaluation. *Earthquakes and structures*. https://scienceon.kisti.re.kr/srch/selectPORSrchArticle.do?cn=JAKO201818564287058
18. **Mark Adom-Asamoah**, Jack Osei, Russell Afrifa (2018). Bamboo reinforced self-compacting concrete one-way slabs for sustainable construction in rural areas. *Cogent Engineering*. https://doi.org/10.1080/23311916.2018.1477464
19. Emmanuel Oppong Boakye, Jack Banahene Osei, **Mark Adom Asamoah** (2018). Finite Element Modelling of Bamboo Reinforced Concrete Beams. *Journal of Construction and Building Materials Engineering*.
20. JB Osei, **M Adom-Asamoah** (2018). Linear Static Progressive Collapse Analysis of Ductility Dependent RC buildings: Case study of an 11-story building. *Journal of Structural Technology*. https://www.researchgate.net/profile/Mark-Adom-Asamoah/publication/325788424_Linear_Static_Progressive_Collapse_Analysis_of_Ductility_Dependent_RC_buildings_Case_study_of_an_11-story_building/links/5b23c2040f7e9b0e3749adbc/Linear-Static-Progressive-Collapse-Analysis-of-Ductility-Dependent-RC-buildings-Case-study-of-an-11-story-building.pdf
21. Jack Banahene Osei, **Mark Adom-Asamoah**, Ahmed Ali Awadallah Ahmed, Eugene Boasiako Antwi (2018). Monte Carlo Based Seismic Hazard Model for Southern Ghana. *Civil Engineering Journal*. https://doi.org/10.28991/cej-0309191
22. **AA Mark** (2018). Numerical Modelling of Joint Shear Capacity for Non-Ductile RC Structures: A Comparative Study. *Journal of Earthquake Science and Soil Dynamic Engineering*.
23. **M Adom-Asamoah**, JB Osei (2018). Shear performance of bamboo reinforced self-compacting concrete beams without stirrups. *ARPN Journal of Engineering and Applied Sciences*. https://scholar.google.com/scholar?cluster=14639483554334987847&hl=en&oi=scholarr
24. **Mark Adom-Asamoah**, Jack Banahene Osei, Kwadwo Adinkra-Appiah (2018). Structural Characteristics of Reinforced Palm Kernel Shell Concrete Deep Beams. *Civil Engineering Journal*. https://doi.org/10.28991/cej-0309188
25. **M Adom-Asamoah**, JB Osei (2018). Structural Lightweight PKS concrete without the use of supplementary cementing materials. *Journal of Structural Technology*. https://www.researchgate.net/profile/Mark-Adom-Asamoah/publication/325949080_Structural_Lightweight_PKS_Concrete_without_the_use_of_Supplementary_Cementing_Materials/links/5b2e3aaf4585150d23c68b9f/Structural-Lightweight-PKS-Concrete-without-the-use-of-Supplementary-Cementing-Materials.pdf
26. **M Adom-Asamoah** (2017). An evaluation of the GSA Nonlinear Static Progressive Collapse Methodology applied to EC 8 Seismically Designed RC Moment Frames. *International Journal of Science and Research*. https://www.academia.edu/download/78886356/814702acc5d8523c7890f3945e35c8960223.pdf
27. **Mark Adom-Asamoah**, Jack Osei Banahene, Jacqueline Obeng, Eugene Antwi Boasiako (2017). Bamboo-reinforced self-compacting concrete beams for sustainable construction in rural areas. *Structural Concrete*. https://doi.org/10.1002/suco.201600205
28. **M Adom-Asamoah**, JB Osei (2017). Behavior of Bamboo Reinforced Self-Compacting Concrete: Application of Short Span Elements. *Kumasi: Kwame Nkrumah University of Science and Technology, Kumasi, Ghana*. https://www.researchgate.net/profile/Mark-Adom-Asamoah/publication/

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29. **Mark Adom-Asamoah** (2017). Earthquake risk: the opinion of ghanaian local artisans. *16th World Conference on Earthquake Engineering16WCEE2017*. http://www.wcee.nicee.org/wcee/article/16WCEE/WCEE2017-4321.pdf

30. Basit Issah Alhassan, Jack Banahene Osei, **Mark Adom Asamoah** (2017). Evaluation of Empirical Joint Shear Strength Models for Simulating Dynamic Responses of Reinforced Concrete Structures.

31. **M Adom-Asamoah**, JO Banahene (2017). Inelastic dynamic behaviour of simply modeled explicit and implicit non-ductile RC beam-column joints. *Jordan Journal of Civil Engineering*. https://www.researchgate.net/profile/Mark-Adom-Asamoah/publication/320141875_Inelastic_dynamic_behaviour_of_simply_modeled_explicit_and_implicit_non-ductile_RC_beam-column_joints/links/5a1cce9b0f7e9b2a5316bcaf/Inelastic-dynamic-behaviour-of-simply-modeled-explicit-and-implicit-non-ductile-RC-beam-column-joints.pdf

32. Thompson Yaw Lemuel, Jack Banahene Osei, **Mark Adom-Asamoah** (2017). On The Non-Linear Finite Element Modelling of Self-Compacting Concrete Beams.

33. **Mark Adom-Asamoah** (2017). Shear behaviour of reinforced concrete deep beams with palm kernel shell as coarse aggregate: A finite element approach. *Proceedings of ICIDA 2017*.

34. **M Adom-Asamoah** (2017). Shear behaviour of reinforced normal weight concrete deep beams using finite element. *Journal of Ceramics and Concrete Sciences*.

35. Herbert Abeka, Stephen Agyeman, **Mark Adom-Asamoah** (2017). Thermal effect of mass concrete structures in the tropics: Experimental, modelling and parametric studies. *Cogent Engineering*. https://doi.org/10.1080/23311916.2016.1278297

36. **M Adom-Asamoah** (2016). Characterization and Shear Strength Prediction of Reinforced Concrete Deep Beams–A Review. *International Journal of Science and Research*. https://www.academia.edu/download/92721044/73c3425da46b2a65562a0a4ac4a64de68ff8.pdf

37. **Mark Adom-Asamoah** (2016). Effect of Design Ductility on the Progressive Collapse Potential of RC Frame Structures Designed to Eurocode 8. *American Journal of Civil Engineering*. https://doi.org/10.11648/j.ajce.20160402.11

38. **M Adom-Asamoah**, JO Banahene (2016). Nonlinear seismic analysis of a super 13-element reinforced concrete beam-column joint model. *Earthquakes and Structures*. https://www.researchgate.net/profile/Mark-Adom-Asamoah/publication/311496951_Nonlinear_seismic_analysis_of_a_super_13-element_reinforced_concrete_beam-column_joint_model/links/5876df6d08ae329d62260fae/Nonlinear-seismic-analysis-of-a-super-13-element-reinforced-concrete-beam-column-joint-model.pdf?_sg%5B0%5D%5Cx3dstarted_experiment_milestone%5Cx26origin%5Cx3djournalDetail%5Cx26_rtd%5Cx3de30%3D

39. A Acheampong, **M Adom-Asamoah**, J Ayarkwa, RO Afrifa (2015). Code compliant behaviour of palm kernel shell reinforced concrete (RC) beams in shear. *Journal of Civil Engineering and Construction Technology*. https://academicjournals.org/journal/JCECT/article-full-text/B87FA4153161

40. **M Adom-Asamoah**, RO Afrifa (2015). Reducing environmental degradation from construction activities: the use of recycled aggregates for construction in Ghana. *Journal of Civil Engineering and Architecture Research*. https://www.researchgate.net/profile/Mark-Adom-Asamoah/publication/299604170_Reducing_Environmental_Degradation_from_Construction_Activities_The_use_of_Recycled_Aggregates_for_Construction_in_Ghana/links/5702937808aea09bb1a2feb2/Reducing-Environmental-Degradation-from-Construction-Activities-The-use-of-Recycled-Aggregates-for-Construction-in-Ghana.pdf

41. **M Adom-Asamoah** (2014). Estimation of pre-compression parameters in the acceleration of consolidation settlement. *American Journal of Civil Engineering*. https://www.academia.edu/download/34266049/Estimation_of_Preconsolidation_parameters.pdf

42. **Mark Adom-Asamoah**, RO Afrifa (2014). Strength Characteristics of Hand-Quarried Partially-Weathered Quartzite Aggregates in Concrete. *American Journal of Civil Engineering*. https://doi.org/10.11648/j.ajce.

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43. **M Adom-Asamoah** (2013). Comparative Study of the Physical Properties of Palm Kernel Shell Concrete and Normal Concrete in Ghana. *Journal of Science and Multidisciplinary Research*. https://scholar.google.com/scholar?cluster=4483909111021554444&hl=en&oi=scholarr

44. A Acheampong, **M Adom-Asamoah**, RO Afrifa (2013). Comparative study of the physical properties of Palm kernel shells concrete and normal weight concrete in Ghana. *Journal of science and multidisciplinary research*. https://scholar.google.com/scholar?cluster=12847820103491722365&hl=en&oi=scholarr

45. R Owusu Afrifa, **M Adom-Asamoah**, E Owusu-Ansah (2012). Artificial Neural Network Model for Low Strength RC Beam Shear Capacity. *Journal of Science and Technology (Ghana)*. https://doi.org/10.4314/just.v32i2.13

46. **M Adom-Asamoah** (2012). Bending and Modulus of Elasticity Properties of Ten Lesser-Used Timber Species in Ghana using Structural Dimensions. *Ghana Journal of Forestry*.

47. **Mark Adom-Asamoah** (2012). Generation of analytical fragility curves for Ghanaian non-ductile reinforced concrete frame buildings. *International Journal of the Physical Sciences*. https://doi.org/10.5897/ijps11.1541

48. **Mark Adom-Asamoah**, Russell Owusu Afrifa (2012). Shear behaviour of reinforced phyllite concrete beams. *Materials & Design (1980-2015)*. https://doi.org/10.1016/j.matdes.2012.07.033

49. **M Adom-Asamoah**, AO Russell (2011). A comparative study of Bamboo reinforced concrete beams using different stirrup materials for rural construction. *International Journal of Civil & Structural Engineering*. https://www.academia.edu/download/41790218/A_comparative_study_of_bamboo_reinforced20160130-28092-1p23y9p.pdf

50. **M Adom-Asamoah** (2011). Capacity of Sawmills and carpentry Workshops for processing Lesser Used Species in Ghana. *Ghana Journal of Forestry*. https://fornis.net/sites/default/files/documents/sawmill_capacity.pdf

51. **Mark Adom-Asamoah**, Russell Owusu Afrifa (2011). Investigation on the flexural behaviour of reinforced concrete beams using phyllite aggregates from mining waste. *Materials & Design (1980-2015)*. https://doi.org/10.1016/j.matdes.2011.05.043

52. **Mark Adom-Asamoah**, Russell Owusu Afrifa (2010). A study of concrete properties using phyllite as coarse aggregates. *Materials & Design (1980-2015)*. https://doi.org/10.1016/j.matdes.2010.03.041

53. **M Adom-Asamoah**, RO Afrifa (2009). Flexural and Shear Behaviour of Reinforced Concrete Beams made from Recycled Materials. *Journal of Ghana Institution of Engineers*. https://www.academia.edu/download/34266143/Recycled_Flexural_Shear_behaviour.pdf

54. **Mark Adom-Asamoah**, Charles K. Kankam (2008). Flexural behaviour of one-way concrete slabs reinforced with steel bars milled from scrap metals. *Materials & Design (1980-2015)*. https://doi.org/10.1016/j.matdes.2008.07.048

55. **Mark Adom-Asamoah**, Charles K. Kankam (2007). Behaviour of reinforced concrete two-way slabs using steel bars milled from scrap metals. *Materials & Design (1980-2015)*. https://doi.org/10.1016/j.matdes.2007.06.001

56. **M Adom-Asamoah** (2006). Nonlinear Static Pushover behaviour of Reinforced Concrete frames designed to provisions of BS 8110. *Journal of Ghana Institution of Engineers*.

57. **M Adom-Asamoah** (2005). Performance Based Assessment Methodology and its Applicability to RC Frame Buildings in Low Seismic Regions. *Journal of Ghana Institution of Engineers*.

58. Charles K. Kankam, **Mark Adom-Asamoah** (2005). Shear strength of concrete beams reinforced with steel bars milled from scrap metals. *Materials & Design (1980-2015)*. https://doi.org/10.1016/j.matdes.2005.03.001

59. **M Adom-Asamoah** (2003). Fibre concrete micro-roofing tiles subjected to static and impact loading. *Journal of Ghana Institution of Engineers*.

60. Charles K. Kankam, **Mark Adom-Asamoah** (2002). Strength and ductility characteristics of reinforcing

steel bars milled from scrap metals. *Materials & Design (1980-2015)*. https://doi.org/10.1016/s0261-3069(02)00028-6

Book chapters 1

1. JO Twumasi, **M Adom-Asamoah** (2026). Structural systems for green adaptive buildings. *Research Companion on Circularity, Deconstruction and Adaptability in Green Buildings*. https://www.elgaronline.com/abstract/book/9781035348732/chapter23.xml

Conference papers 14

1. **Mark Adom-Asamoah** (2017). Evaluation of shear behaviour of self compacting concrete beams with fibre reinforcement. *Proceedings of ICIDA 2017*.
2. **M Adom-Asamoah** (2015). A Super Element beam-column joint model under dynamic loading. *Proceedings of ESTE 2015 conference*.
3. **M Adom-Asamoah** (2015). Applicability of the GSA nonlinear static progressive collapse methodology to EC8 seismically designed RC frames. *Proceedings of ESTE 2015 conference*.
4. **M Adom-Asamoah** (2015). Dynamic response evaluation of reinforced concrete frames incorporating different analytical beam-column joint modeling schemes. *Proceedings of ESTE 2015 conference*.
5. **M Adom-Asamoah** (2015). Evaluation of shear strength of reinforced concrete deep beams. *Proceedings of ESTE 2015 conference*.
6. **M Adom-Asamoah**, RO Afrifa (2015). Shear strength prediction of palm kernel shell RC deep beams without shear reinforcement. *Proceedings of ESTE 2015 conference*. https://www.researchgate.net/profile/Mark-Adom-Asamoah/publication/280777501_SHEAR_STRENGTH_PREDICTION_OF_PALM_KERNEL_SHELL_RC_DEEP_BEAMS_WITHOUT_SHEAR_REINFORCEMENT/links/57a22ab308aeef8f311ec865/SHEAR-STRENGTH-PREDICTION-OF-PALM-KERNEL-SHELL-RC-DEEP-BEAMS-WITHOUT-SHEAR-REINFORCEMENT.pdf
7. **M Adom-Asamoah**, JO Banahene (2015). Temperature prediction models in mass concrete: State of the art review. *Proceedings of ESTE 2015 conference*.
8. **M Adom-Asamoah** (2013). Shear capacity of reinforced palm kernel shells concrete and normal weight concrete with and without shear reinforcement. *Proceedings of 2nd Applied Research Conference in Africa (ARCA 2013)*.
9. **M Adom-Asamoah**, RO Afrifa (2012). Comparative study on shear strength of reinforced concrete beams made from phyllite and granite aggregates without shear reinforcement. *Procs 1st International Conference on Infrastructure Development in Africa (ICIDA)*. https://www.academia.edu/download/41790225/Comparative_study_on_shear_strength_of_r20160130-11868-qhfpof.pdf
10. **M Adom-Asamoah** (2011). Wood Processing Capacity of Sawmills and Carpentry Workshops in Ghana. *20th International Wood Machining Seminar - IWMS-20, Wood Technology Department of Lulea University of Technology, Skelleftea, Sweden*.
11. **M Adom-Asamoah** (2008). A potential well framework for nonlinear seismic performance. *The 14th World Conference on Earthquake Engineering*.
12. **M Adom-Asamoah** (2008). Structural Application of Wawabima: The New Pedestrian Bridge over River Sisai, Anloga. *International Conference: Research on Lesser known Timber Species for Bridge construction*.
13. **M Adom-Asamoah** (2002). Fracture toughness of palm kernel fibre-reinforced concrete from three-point bend specimens. *Proceedings of the Fifth International Conference on Structural Engineering Analysis and Modeling*.
14. **M Adom-Asamoah** (2002). Strength and ductility characteristics of locally-milled reinforcing steel bars in Ghana. *Proceedings of the Fifth International Conference on Structural Engineering Analysis and Modeling*.

Theses 1

1. **M Adom-Asamoah** (2005). Nonlinear dynamic behaviour of NSD RC frame buildings subjected to earthquakes. *University of Bristol*. https://scholar.google.com/scholar?cluster=9894750899215655379&hl=en&oi=scholarr