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Department of Civil Engineering
Stellenbosch University
Private Bag X1 7602
Stellenbosch
South Africa

CURRENT POSITION

Senior Lecturer, Department of Civil Engineering
Stellenbosch University, South Africa

EDUCATION

Stellenbosch University, South Africa
PhD, Civil Engineering, March 2015
Dissertation: "Tensile Creep of Cracked Macro-Synthetic Fibre Reinforced Concrete."

Obafemi Awolowo University, Ile-Ife, Nigeria
MSc, Building Structures, March 2011
Dissertation: "Effects of Coarse Aggregate Sizes on the Compressive and Tensile Strengths of Palm Kernel Shell Concrete."

Obafemi Awolowo University, Ile-Ife, Nigeria
BSc, Building, August 2001
Thesis: "Effects of the Replacement of Sharp Sand with Erosion Sand on the Properties of Mortar, Sandcrete Blocks and Concrete."

RESEARCH AND TEACHING INTEREST

Fibre reinforced cement-based materials, from material to structural level
Time-dependent behaviour of cement-based materials, with special focus on creep of cracked fibre reinforced concrete
Use of supplementary cementitious materials in concrete
Durability properties of cement-based materials
Eco-friendly construction materials
Strength of Materials
Theory of Structures
Reinforced concrete Design

SCHOLARLY PUBLICATIONS

Journal Publications

Alake, O., Wahab, A. B., Obadje, O. O. and **Babafemi, A. J.** (2007). Analysis of leakage problems in urban water supply network (A case study of Akure, Ondo State, Nigeria). *International Journal of Physical Sciences, 2*(1), 30-37.

Olawuyi, B. J. and **Babafemi, A. J.** (2009). Performance evaluation of polystyrene walling units. *Ife Journal of Environmental Design and Management,* Ile-Ife, *2*(2), 54-59.

Babafemi, A. J., Obadje, O. O., and Alake, O. (2010). An appraisal of research advances on the performance characteristics of palm kernel shell concrete for structural applications. *Journal of Science and Technology Research,* 9(2), 36-40.

Babafemi, A. J. and Olusola, K. O. (2012). Influence of curing media on the compressive strength of palm kernel shell (pks) concrete. *International Journal of Research and Reviews in Applied Sciences, 13*(1), 180- 185.

Olawuyi, B. J., Olusola, K. O. and **Babafemi, A. J.** (2012). Influence of curing age and mix composition on compressive strength of volcanic ash blended cement laterized concrete. *Civil Engineering Dimensions, 14*(2), 84-91.

Olusola, K. O., **Babafemi, A. J.**, Umoh, A. A. and Olawuyi, B. J. (2012). Effect of batching methods on the fresh and hardened properties of concrete. *International Journal of Research and Reviews in Applied Sciences, 13*(3), 773- 779.

Umoh, A. A., Olaniyi, A., **Babafemi, A. J.** and Olasunkanmi, O. F. (2013). Assessing the mechanical performance of ternary blended cement concrete incorporating periwinkle shell and bamboo leaf ashes. *Civil and Environmental Research, 3*(1), 26-35.

Olusola, K. O. and **Babafemi, A. J.** (2013). Effect of coarse aggregate sizes and replacement levels on the strength of palm kernel shell (PKS) concrete. *Civil Engineering Dimensions, 15*(1), 43-50.

Olawuyi, B. J., Olusola, K. O. and **Babafemi, A. J.** (2014). An investigation into the pozzolanic properties of volcanic ash sample obtained from Dutsin Dushowa in Jos Plateau. *Journal of Environmental Design and Management,* Ile-Ife, *6*(1 & 2), 29-35.

Babafemi, A. J. and Boshoff, W. P. (2015). Tensile creep of macro-synthetic fibre reinforced concrete (MSFRC) under uni-axial tensile loading. *Cement and Concrete Composites, 55*, 62-69.

Olusola, K. O. and **Babafemi, A. J.** (2015). Assessment of *kernelrazzo* exposed to aggressive environment. *Construction and Building Materials, 101*, 174-183.

Obadje, O. O. and **Babafemi, A. J.** (2015). Performance of *kernelrazzo* floor finish in sulphate. *Journal of the Nigerian Institute of Quantity Surveying,* 59, 20-25.

Babafemi, A. J. and Boshoff, W. P. (2016). Testing and modelling the creep of cracked macro-synthetic fibre reinforced concrete (MSFRC) under flexural loading. *Materials and Structures,* 49(10), 4389-4400.

Paul, S. C., Van Zijl, G. P. A. G., **Babafemi, A. J.** and Tan, M. J. (2016). Chloride ingress in cracked and uncracked SHCC under cyclic wetting-drying exposure. *Construction and Building Materials*, 114, 232-240.

Paul, S. C., **Babafemi, A. J.**, Conradi, K. and Van Zijl, G. P. A. G. (2017). Applied voltage on corrosion mass loss and cracking behavior of steel reinforced SHCC and mortar specimens. *Journal of Materials in Civil Engineering,* 29(5), May 2017.

Babafemi, A. J. and Boshoff, W. P. (2017). Pull-out response of synthetic macro fibre from concrete matrix: effect of loading rate and embedment length. *Construction and Building Materials*, 135, 590-599.

Nieuwoudt, P. D., **Babafemi, A. J.** and Boshoff, W. P. (2017). The response of cracked steel fibre reinforced concrete under various sustained stress levels on both the macro and single fibre level. *Construction and Building Materials*, 156, 828-843.

Babafemi, A. J., Nieuwoudt, P. D. and Boshoff, W. P. (2017). Comparative evaluation of the creep of cracked steel fibre and synthetic macro fibre reinforced concrete in tension. *Concrete Beton*, 151, 12-21.

Paul, S. C. and **Babafemi, A. J.** (2017). Performance of strain hardening cement-based composite (SHCC) under various exposure conditions. *Cogent Engineering*, 4(1), 1345608.

Paul, S. C. and **Babafemi, A. J.** (2018). A review of the mechanical and durability properties of strain hardening cement-based composite (SHCC). *Journal of Sustainable Cement-Based Materials*, 7(1), 57-78.

Odendaal, C. M., **Babafemi, A. J.**, Combrinck, R., de Villiers W. I. and Boshoff, W. P. (2018). Evaluation of locally available synthetic macro fibres in a single fibre pull-out test in concrete. *Journal of the South African Institution of Civil Engineering* (SAICE), 60(1), 21-30.

Ajayi, E. O. and **Babafemi, A. J.** (2018). Effects of pulverized burnt clay waste fineness on the compressive strength and durability properties of blended cement concrete. *Engineering Journal*, 22(2), 83-99.

Babafemi, A. J., Du Plessis, A. and Boshoff, W. P. (2018). Pull-out creep mechanism of synthetic macro fibres under a sustained load. *Construction and Building Materials*, 174, 466-473.

Paul, S. C. and **Babafemi, A. J.** (2018). A Review on reinforcement corrosion mechanism and measurement methods in concrete, *Civil Engineering Research Journal*, 5(3), 555661. Doi: 10.19080/CERJ.2018.05.555661.

Paul, S. C., Savija, B. and **Babafemi, A. J.** (2018). A comprehensive review of the mechanical and durability properties of cement-based materials containing waste recycled glass. *Journal of Cleaner Production*, 198, 891-906. Doi: 10.1016/j.jclepro.2018.07.095.

Babafemi, A. J., Savija, B., Paul, S. C. and Anggraini, V. (2018). Engineering properties of concrete with waste recycled plastic: A review. *Sustainability*, 10, 3875, doi:10.3390/su10113875

Babafemi, A. J. Kolawole, J. T. and Olasusi O. B. (2019). Mechanical and durability properties of coir fibre reinforced concrete. *Journal of Engineering Science and Technology*, 14(3), 1482-1496.

Conference Papers

Babafemi, A. J. and Olawuyi, B. J. (2011): Effect of replacement of sand with granite fines on the compressive and tensile strengths of palm kernel shell concrete *In:* Laryea, S., Leiringer, R. and Hughes, W. (Eds) *Procs West Africa Built Environment Research (WABER) Conference*, 19-21 July 2011, Accra, Ghana, 371-378.

Babafemi, A. J. and Boshoff, W. P. (2013): Time-dependent behaviour of pre-cracked polypropylene fibre reinforced concrete (PFRC) under sustained loading. In: *Proceedings of SEMC 2013: The Fifth International Conference on Structural Engineering, Mechanics and Computation*, 2-4 September, Cape Town, South Africa, pp. 1593-1598.

Babafemi, A. J. and Boshoff, W. P. (2013): Preliminary creep behaviour of polypropylene fibre reinforced concrete (PPFRC) under a high tensile stress. In: *Proceedings of International Conference on Advances in Cement and Concrete Technology in Africa*, Johannesburg, South Africa, 25-28 January, pp. 887-895.

Babafemi, A. J. and Boshoff, W. P. (2015): Crack Widening Response of Cracked Macro Synthetic Fibre Reinforced Concrete under Sustained Tensile Loading. In: *Proceedings of the Fifth International Conference on Construction Materials: Performance, Innovations and Structural Implications*, Whistler, BC, Canada, 19-21 August, pp. 231-242.

Babafemi, A. J. and Boshoff, W. P. (2016): Macro-synthetic Fibre Reinforced Concrete (MSFRC): Creep and Creep Mechanism. In: *Proceedings of FRC-CREEP 2016, International RILEM Workshop on Creep Behaviour in Cracked Section of Fibre Reinforced Concrete,* Valencia, Spain, 9-10 March, pp. 179-191.

Babafemi, A. J. and Boshoff, W. P. (2016). Creep Response of Cracked Polypropylene Macro Fibre Concrete under Sustained Flexural Loads. In: *Proceedings of 9th RILEM International Symposium on Fibre Reinforced Concrete* (BEFIB 2016), Vancouver, Canada 19-21 September, pp. 189-197.

Babafemi, A. J. and Boshoff, W. P. (2017). Pull-out phenomenon of synthetic macro fibre from a cementitious matrix. *71st RILEM Week and International Conference on Advances in Construction Materials and Systems*, Chennai, India, 3-8 September, pp. 367-375.

Ajayi, E. O., **Babafemi, A. J.** and Olawuyi, B. J. (2017). Effect of pulverized burnt clay waste fineness and replacement level on the compressive strength of blended cement concrete. *10th ACI/RILEM International Conference on Cementitious Materials and Alternative Binder for Sustainable Concrete*, Montreal, Canada, October 2017.

Babafemi, A. J. Compressive strength and initial surface absorption properties of concrete containing electric arc furnace slag as coarse aggregate. *In: Proceedings of Environmental Design and Management International Conference*, 20-22 May, Ile-Ife, Nigeria.

Olawuyi, B. J., Saka, R. O., Nduka, D. O. and **Babafemi, A. J.** Comparative study of superabsorbent polymers and pre-soaked pumice as internal curing agents in rice husk ash based high-performance concrete. *3rd International Conference on Application of Superabsorbent Polymers and Other New Admixtures Towards Smart Concrete*, Kruger National Park, South Africa, 25-27 November 2019.

Manuscript Submitted for Publication

(i) **Babafemi, A. J.** Compressive strength of concrete containing calcined laterite as a supplementary cementitious material. *International Conference on Cement-Based Materials Tailored for a Sustainable Future*, 7 - 8 May 2020, Istanbul, Turkey.

(ii) Kolawole, J. T., Olusola, K. O. and **Babafemi, A. J.** Ternary blended cement and sustainable concrete made from solid waste pozzolans. *International Conference on Cement-Based Materials Tailored for a Sustainable Future*, 7 - 8 May 2020, Istanbul, Turkey.

(iii) Fanijo, E., **Babafemi, A. J.** and Arowojolu, O. Performance of laterized concrete made with palm kernel shell as replacement for coarse aggregate. *Construction and Building Materials*.

(iv) Miah, M. J. *et al.* Sustainable use of induction furnace steel slag in concrete as coarse aggregate: mechanical properties and porosity. *Construction and Building Materials*.

(v) Steyn, Z. C., Babafemi, A. J., Fataar, H. and Combrinck, R. Concrete containing waste recycled glass, plastic and rubber as sand replacement. *Construction and Building Materials*.

(vi) Vitharana, M. G. *et al.* Corrosion protection of steel bars in fly ash mixed cement mortars using different dosages and types of nanoparticles. *3rd International Conference on Innovative Technologies for Clean and Sustainable Development*, 19–21 February 2020, Chandigarh, India.

(vii) Miah, M. J. *et al.* Reuse of waste iron powder as partial replacement for sand and cement in mortar. *3rd International Conference on Innovative Technologies for Clean and Sustainable Development*, 19–21 February 2020, Chandigarh, India.

(viii) Miah, M. J. *et al.* The potential use of brick fine aggregate as an alternative to natural fine aggregate in cement-based materials: impacts on mechanical properties. *3rd International Conference on Innovative Technologies for Clean and Sustainable Development*, 19–21 February 2020, Chandigarh, India.

AWARDS AND HONOURS

Tertiary Education Trust Fund (TETFund, Nigeria) for Academic Staff Training & Development Programme to pursue PhD programme at Stellenbosch University, South Africa, 2011-2014.

Sub-Committee B Post-Doctoral Research Fellowship, Stellenbosch University, South Africa, May 2016-June 2017.

Sub-Committee B New Appointees Research Fellowship, Stellenbosch University, South Africa, 2020.

MEMBERSHIP OF PROFESSIONAL BODIES

Member, Nigerian Institute of Building
Registered Builder, Council of Registered Builders of Nigeria
Member, American Concrete Institute
Member, Concrete Society of Southern Africa
Member of RILEM (International Union of Laboratories & Experts in Construction Materials, System and Structures)
Associate Member, South African Institution of Civil Engineering

TEACHING/ADMINISTRATIVE EXPERIENCE

August 2019 to Date: Senior Lecturer, Department of Civil Engineering, Stellenbosch University
Undergraduate teaching (Strength of Materials 254)
Skripse supervision
Research in the field of construction materials
Academic and departmental administration

October 2018 to August 2019: Senior Lecturer, Department of Building, Obafemi Awolowo University, Nigeria
Undergraduate and Postgraduate teaching and curriculum development
Postgraduate supervision
Undergraduate supervision
Research in the field of construction materials
Academic and departmental administration
Faculty admission officer
Departmental result processing officer
Managing & Corresponding Editor, Journal of Environmental Design & Management (JEDM)
Secretary, Environmental Design & Management International Conference (EDMIC 2019)

May 2016 to June 2017: Postdoctoral Research Fellow, Department of Civil Engineering (Unit for Construction Materials), Stellenbosch University

Research into understanding the pull-out creep mechanism of macro-synthetic fibre from cement matrix.
Supervision of an undergraduate student thesis
Guidance to a postgraduate (MSc) student with regards to his research project
Writing and publications of articles

March 2015 to September 2018: Lecturer I, Department of Building, Obafemi Awolowo University, Nigeria

Undergraduate and Postgraduate teaching and curriculum development
Postgraduate supervision
Undergraduate supervision
Research in the field of construction materials
Academic and departmental administration
Faculty admission officer
Departmental result processing officer
Managing &Corresponding Editor, Journal of Environmental Design & Management (JEDM)

March 2011 to March 2015: Lecturer II, Department of Building, Obafemi Awolowo University, Nigeria

Undergraduate teaching
Undergraduate supervision
Research in the field of construction materials
Academic and departmental administration
PhD studies at Stellenbosch University (August 2011 to December 2014)

November 2005 to February 2011: Graduate Assistant and Assistant Lecturer, Department of Building, Obafemi Awolowo University, Nigeria

Undergraduate teaching
Undergraduate supervision
Research in the field of construction materials
Academic and departmental administration

December 2003 to November 2005: Lecturer III, Waziri Umaru Polytechnic, Birnin Kebbi, Nigeria

Undergraduate teaching at National and Higher National Diploma levels
Supervision of Diploma and Higher Diploma research projects
Academic and departmental administration

RESEARCH PROFILE

Google Scholar: H-index = 7, Citations = 215
(https://scholar.google.com/citations?user=JWpBGHQAAAAJ&hl=en)
Scopus: H-index = 6, Citations = 128
(https://www.scopus.com/authid/detail.uri?authorId=55948535200)

POSTGRADUATE SUPERVISION

Emmanuel Onaivi Ajayi (M. Sc. Building Structures, 2016)

Title of thesis: Effects of pulverized burnt clay fineness on the properties of blended cement concrete

Olayemi Temilorun Akinola (M. Sc. Building Structures, 2017)

Title of thesis: Effects of sawdust ash on the porosity of laterised concrete using electrical resistivity

Kazeem Dele Musbau (M. Sc. Building Structures, 2019)

Title of thesis: Performance evaluation of concrete containing limestone calcined clay and limestone calcined laterite blended cements

Oluwayemi Adeseye Omoboriowo (M. Sc. Building Structures – In view)

Taiwo Martins Ajayi (M. Sc. Building Structures – In view)

SERVICES

i. Reviewer, Journal of Construction and Building Materials, United Kingdom.

ii. Reviewer, Journal of American Concrete Institute Material Journal, U.S.A.

iii. Reviewer, Journal of Cogent Engineering (2017 to date)

iv. Honourable General Secretary, Nigerian Institute of Building (NIOB), Osun State.

v. Examiner, Nigerian Institute of Building (NIOB), 2007-2009

LANGUAGE

English (Excellent – Speaking & Writing), Yoruba, Hausa