

Dr. Philemon Arito, PhD

1 Windsor Mansions, 3 Lulworth Road, Rondebosch, 7700, Cape Town, South Africa
✉ Email: philemon.arito@hotmail.com; ☎ Tel. (Cell): +27 (082) 505-4638; +254 (074) 143-9596

LANGUAGES	<ul style="list-style-type: none">▪ English: Fluent (speaking, reading, writing).▪ Swahili: Fluent (speaking, reading, writing).
CAREER OBJECTIVE	To work in an environment where my potential, knowledge and personality will be nurtured, honed, and exploited positively; and to work with colleagues, with whom we will use Civil Engineering as a tool for the enhancement of the welfare of the society and the globe at large.
PERSONAL PROFILE	Excellent communication, leadership and inter-personal skills, diligent, honest, caring and a team-player.
EDUCATION	<p>University of Cape Town, Cape Town, South Africa Doctor of Philosophy (PhD) in Civil Engineering Feb 2013 – Apr 2018 Thesis: <i>Influence of Mix Design Parameters on Restrained Shrinkage Cracking in Non-Structural Concrete Patch Repair Mortars.</i></p> <p>Master of Science (MSc. Eng.) in Civil Engineering Feb 2010 – Dec 2012 Thesis: <i>Discrete Sacrificial Anodes and Their Use in Service Life Extension of Chloride-Contaminated Reinforced Concrete Structures.</i></p> <p>University of Nairobi, Nairobi, Kenya Nov 2004 – Sep 2009 Bachelor of Science (BSc. Eng.) in Civil Engineering, Upper Second Class Honours.</p> <p>Highway Secondary School, Nairobi, Kenya Feb 1999 – Nov 2002 Kenya Certificate of Secondary Education (K C S E), Mean Grade: A-</p>
COMPUTER PROFICIENCY	<ul style="list-style-type: none">▪ In-depth knowledge of general computer hardware, MS Office packages and word processors e.g., \LaTeX.▪ Proficient in general civil engineering software such as AutoCAD and Prokon.▪ Proficient in multiscale modelling of cement-based materials using FEMMASSE and HymoStruc.▪ Proficient in statistical and data analysis software such as Minitab and RStudio.
PROFESSIONAL AFFILIATIONS	<p>Concrete Society of Southern Africa (CSSA), 2010 – Present</p> <ul style="list-style-type: none">▪ Student Member.▪ Board Member (Western Cape Branch) (2014 – 2017). <p>International Union of Laboratories and Experts in Construction Materials (RILEM), 2013 – Present</p> <ul style="list-style-type: none">▪ Member (Membership Number 35464).
WORK EXPERIENCE	<p>TEACHING AND RESEARCH</p> <p>University of Cape Town, Cape Town, South Africa, Department of Civil Engineering,</p> <p>Position: <i>Postdoctoral Research Fellow.</i> Sep 2017 – Present</p> <p>Major duties and responsibilities:</p> <ul style="list-style-type: none">▪ Researched on concrete patch repair mortars, performance specifications for repairs and cement and concrete technology.▪ Supervised and co-supervised postgraduate research and final year undergraduate research projects.▪ Taught postgraduate and undergraduate courses on cement and concrete technology, building science, construction materials and concrete repair.▪ Taught rebar corrosion and performance specifications for repairs in the 2018 RILEM PhD course in concrete repair. <p>Position: <i>Assistant Lecturer.</i> Jan 2013 – Apr 2019</p> <p>Major duties and responsibilities:</p> <ul style="list-style-type: none">▪ Taught the following postgraduate courses: Repair and Rehabilitation of Concrete Structures; Durability and Condition Assessment of Concrete Structures and Structural Concrete Properties and Practice.▪ Taught the following undergraduate courses: Building Science, Construction Materials and Introduction to Civil Engineering.▪ Co-supervised undergraduate and postgraduate research projects.

Position: *Tutor*.

Jan 2010 – Dec 2012

Major duties and responsibilities:

- Tutored undergraduate courses on: Structural Engineering; Building Science; Experimental Methods and Statistics and Introduction to Civil Engineering.

University of Namibia, José Eduardo Dos Santos Campus, Ongwediva, Namibia,
Department of Civil and Environmental Engineering,

Position: *Visiting Lecturer*.

Oct 2018 – Present

Taught undergraduate courses on Reinforced and Prestressed Concrete Design and Structural Engineering and co-supervised final year undergraduate research and design projects as a Visiting Lecturer under a partnership programme between the University of Cape Town (UCT) and the German government through the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

PROFESSIONAL ENGINEERING PRACTICE

Concrete Materials and Structural Integrity Research Unit (CoMSIRU), Cape Town, South Africa
University of Cape Town, Department of Civil Engineering

Position: *Materials Engineer and Researcher*.

Jan 2010 – Present

Major duties and responsibilities:

- Conducted non-destructive tests and condition assessment on many deteriorating reinforced concrete buildings and structural elements, nuclear containment structures, bridges and mine shafts.
- Concrete mix design and testing, testing concrete and cementitious materials and preparation of engineering/technical reports.

Position: *Structural and Materials Engineering Consultant*.

Jan 2013 – Present

Consultant for several civil and structural engineering consulting firms and private individuals as a Structural and Materials Engineer.

- Review of structural designs and drawings for a proposed residential building on Plot 1274 Madonsa, Manzini, Swaziland. (Client: *E.D. Simelane and Associates (Pty) Ltd, P.O. Box 2244, Mbabane, Swaziland. February 2019; Cost of project ZAR 2 600 000*).
- Structural design, detailing and supervision of a 2-storey private residential dwelling and a swimming pool in Heathfield, Cape Town, South Africa. (Client: *Mr. Noel Viljoen; August 2013 to February 2014; Cost of project ZAR 350 000; Supervising Engineer: Jameson Mtanga, Pr.Eng*).

Multiscope Consulting Engineers Ltd, Nairobi, Kenya

Sep 2009 – Jan 2010

Position: *Graduate Engineer*.

Major duties and responsibilities:

- Structural design and detailing of reinforced concrete buildings, lecture theatres and water-retaining structures.
- Digitisation of analogue drawings.

Wachira Builders Ltd, Nairobi, Kenya

Sep 2007 – Aug 2009

Position: *Intern Site Engineer and Construction Site Manager*.

Skills acquired:

- Site supervision and inspections.
- Construction materials management and quality control.
- Preparation of site progress reports.
- Management of construction site personnel.
- Reading and interpretation of engineering drawings.

Ministry of Public Works (Structural Department), Nairobi, Kenya

Aug 2008 – Oct 2008

Position: *Intern Engineer*.

Skills acquired:

- Reading and interpretation of: survey and structural drawings, road and storm water plan layout design and profiles.
- Design and drawing of sewerage disposal systems and plotting of sewerage longitudinal profiles.
- Structural design and detailing and introduction to computer-aided detailing.
- Site inspections.

**PEER-REVIEWED JOURNALS
PUBLICATIONS**

- [1] Beushausen, H. and Arito, P. The influence of mix composition, w/b ratio and curing on restrained shrinkage cracking of cementitious mortars, *Construction and Building Materials*, vol. 174, pp. 38–46, Apr 2018. doi.org/10.1016/j.conbuildmat.2018.04.099.
- [2] Tchetgnia Ngassam, I.L., Arito, P. and Beushausen, H. A new approach for the mix design of (patch) repair mortars, *African Journal of Science, Technology, Innovation and Development*, no. 3, vol. 10, pp. 259–265, Apr 2018. doi.org/10.1080/20421338.2018.1452845.
- [3] Arito, P., Beushausen, H. and Alexander, M.G. Influence of redispersible polymer type and content on restrained shrinkage cracking in non-structural patch repair mortars, (Under Review).

BOOKS AND CHAPTERS IN BOOKS

- [1] Beushausen, H., Arito, P., van Zijl, G.P.A.G. and Alexander, M. G. Chapter 10: Deformation and volume change of hardened concrete. *Fulton's Concrete Technology, 10th Edition, The Concrete Institute, (in Press)*.
- [2] Vernon, Collis., Alexander, M. G., and Arito, P. Chapter 4: Aggregates for concrete. *Fulton's Concrete Technology, 10th Edition, The Concrete Institute, (in Press)*.

CONFERENCES

- [1] Arito, P. A., Beushausen, H. and Alexander, M. G. Barriers to the realisation of effectiveness in the cracking performance of concrete patch repair mortars in service. *Proceeding of the fib symposium held on the 21st - 23rd of November 2016 in Cape Town, South Africa* Nov 2016.
- [2] Arito, P. A., Beushausen, H. and Alexander, M. G. An experimental investigation into the effects of water and binder-related parameters on restrained shrinkage cracking in concrete patch repair mortars. *Concrete Solutions, Taylor and Francis*. Pp. 247-252, Thessaloniki, Greece, Jun 2016.
- [3] Ngassam, I. L. T., Arito, P. and Beushausen, H. Rethinking the formulation of (patch) repair mortars. *2nd International Conference on Advances in Cement and Concrete Technology in Africa, Schmidt and Msinjili (Eds), BAM Federal Institute for Materials Research and Testing, Pp. 517-524., Dar es Salaam, Tanzania, Jan 2016.*
- [4] Kizito, N., Beushausen, H., Moyo, P. and Arito, P. An experimental study on the creep and relaxation behaviour of concrete. *2nd International Conference on Advances in Cement and Concrete Technology in Africa, Schmidt and Msinjili (Eds), BAM Federal Institute for Materials Research and Testing, Pp. 485-495., Dar es Salaam, Tanzania, Jan 2016.*
- [5] Arito, P. A., Beushausen, H. and Alexander, M. G. Towards improved cracking resistance in concrete patch repair mortars. *International Conference on Concrete Repair, Rehabilitation and Retrofitting IV – Dehn et al. (Eds), Taylor and Francis Group, London, Pp. 657-662., Leipzig, Germany, Oct 2015.*
- [6] Arito, P. A. and Beushausen, H. The effectiveness of corrosion inhibitors in reducing corrosion in chloride contaminated RC structures. *International Conference on Concrete Repair, Rehabilitation and Retrofitting IV – Dehn et al. (Eds), Taylor and Francis Group, London, Pp. 479-485., Leipzig, Germany, Oct 2015.*
- [7] Arito, P. A., Beushausen, H., Alexander, M. and Otieno, M. The use of sacrificial anodes in extending the service life of RC structures in South Africa. *International Conference on Advances in Cement and Concrete Technology in Africa, Uzoegbo and Schmidt (Eds), BAM Federal Institute for Materials Research and Testing, Pp 1081-1088., Johannesburg, South Africa, Jan 2013.*
- [8] Arito, P. A., Beushausen, H., Alexander, M. G. and Otieno, M. O. The use of discrete sacrificial anodes in reducing corrosion rate in chloride contaminated concrete. *International Conference on Concrete Repair, Rehabilitation and Retrofitting III - Alexander et al. (Eds), Taylor and Francis Group, London, Pp. 999-1002., Cape Town, South Africa, Sep 2012.*

OTHERS

- [1] Arito, P. A. Influence of mix design parameters on restrained shrinkage cracking in non-structural concrete patch repair mortars. *PhD Thesis, University of Cape Town*, Jan 2018.
- [2] Arito, P. A. Discrete sacrificial anodes and their use in service life extension of chloride contaminated reinforced concrete structures. *MSc. Thesis, University of Cape Town*, Nov 2012.

ACADEMIC AND RESEARCH AWARDS	Carnegie Postdoctoral Research Fellowship , University of Cape Town	Sep 2017 – Mar 2020
	Awarded a Postdoctoral Research Fellowship from the Carnegie Corporation of New York towards the development of emerging academic leaders.	
	Carnegie Fellowship , University of Cape Town	2014 – 2016
	Awarded a fellowship from the Carnegie Corporation of New York towards the development of the next generation of academics.	
	Research Associateship , University of Cape Town	Aug 2013
	Awarded a Research Associateship by the University of Cape Town.	
OTHER AWARDS AND HONOURS	CoMSIRU Postgraduate Research Scholarship , University of Cape Town	2010 – 2013
	Awarded a scholarship to pursue postgraduate studies at the University of Cape Town by the Concrete Materials and Structural Integrity Research Unit (CoMSIRU).	
	Eng. Carey Orege Civil Engineering Award , University of Nairobi	Nov 2011
	Recipient of the Eng. Carey Orege Civil Engineering Award for being the best final year student and the best final year student in transportation and highways for the year 2008/2009.	
	Duracoat Award of Academic Excellence , University of Nairobi	Aug 2010
	Recipient of the Duracoat Award of Academic Excellence for the year 2008/2009 by Basco Paints Kenya Ltd.	
PROFESSIONAL DEVELOPMENT	Other Academic Merit Awards , The Highway Secondary School	1999 – 2002
	Awarded numerous academic merit awards in Mathematics, Biology, Commerce, and Swahili at Highway Secondary School.	
	▪ Outstanding Postgraduate Student , University of Cape Town	Nov 2012
	Recognised as an outstanding postgraduate student with respect to tutoring and student mentorship at the Faculty of Engineering and the Built Environment.	
	▪ Most Outstanding Postgraduate Student Council , University of Cape Town	Oct 2014
	Our student council was recognised as the most outstanding postgraduate student council at the University of Cape Town.	
RESEARCH INTERESTS	Conferences, retreats, seminars and workshops	
	▪ Attended the “ <i>Writing for Publication Retreat for Postdocs and Early Career Researchers</i> ” at the University of Cape Town (Oct 2017 and Aug 2018).	
	▪ Attended a 10-month <i>s.e.a TEACH (supporting emerging academics TEACH)</i> programme organised by the Centre for Innovation in Learning and Teaching (CILT) and the Centre for Higher Education Development (CHED) at the University of Cape Town (Jan - Oct 2015).	
	▪ Attended a <i>Teaching and Learning Conference (TLC)</i> organised by the Centre for Higher Education Development (CHED) at the University of Cape Town (Oct 2014).	
	▪ Attended a retreat on <i>Teaching and Learning within the Faculty of Engineering and the Built Environment (EBE)</i> at the University of Cape Town (July 2014).	
	Courses	
RESEARCH INTERESTS	▪ <i>Experimentation for Improvement</i> : completed an online course through coursera.org (01 st May 2018 - 08 th July 2018).	
	▪ <i>Learning R</i> : completed an online course through Lynda.com (23 rd May 2018).	
	▪ <i>Foundation Course in Design Thinking</i> : Hasso Plattner Institute of Design Thinking at the University of Cape Town (March - May 2016).	
	▪ <i>Multiscale Modelling Course for Concrete (MMC2)</i> : TU Delft, The Netherlands (21-25 October 2013).	
	▪ <i>Workshop on Cement Chemistry</i> : Cape Town, South Africa (31 January 2013).	
	▪ <i>Non-Destructive Testing of Concrete Structures</i> : Cape Town, South Africa (06 September 2012).	
	▪ <i>Workshop on Concrete Structures in Fire</i> : Cape Town, South Africa (05 March 2012).	
	▪ <i>The Principles of Concrete Bridge Design</i> : Cape Town, South Africa (07 - 08 November 2011).	
	▪ Understanding the effect of novel construction materials on the mechanical, chemical and durability properties of concrete. These materials comprise: Super-absorbent polymers, redispersible polymers, crack-dealing products, admixtures, recycled aggregates, municipal solid wastes, agricultural wastes and alternative binders such as metakaolin.	
	▪ Patch repair mortars: mix design optimisation, cracking, performance specifications and repair failure.	
▪ Condition assessment, retrofitting and rehabilitation of deteriorating structures.		
▪ Numerical modelling of service life, fracture and deterioration mechanisms in cement-based materials.		
▪ Durability and durability design of concrete and reinforced concrete structures.		

RESEARCH SUPERVISION	<p>Co-supervised the following postgraduate research students:</p> <ul style="list-style-type: none"> ▪ Brian Abala Vukindu: <i>Performance Requirements for Patch Repair Mortars: Cracking Resistance and Durability</i>. University of Cape Town. MSc. Eng. - Civil Engineering. ▪ Ansifrid Joachim Lekundayo: <i>Durability Design and Crack-healing of Liquid Retaining Concrete Structures With Crystalline Admixtures</i>. University of Cape Town. MSc. Eng. - Civil Engineering. ▪ Fares Miri: <i>An Investigation into the Effect of Construction and Demolition Waste on the Mechanical and Durability Properties of Concrete</i>. University of Cape Town. BSc. Eng. (Honours) - Civil Engineering.
RESEARCH ACTIVITIES	<ul style="list-style-type: none"> ▪ Member of RILEM TC AMC: Use of agro-based materials as cementitious additions in concrete and cement-based materials . ▪ Scientific Committee Member for the Concrete Society of Southern Africa (CSSA) Young Concrete Researchers, Engineers and Technologist Symposium (YCRETS) 2020. ▪ Reviewer for the ACI Materials and ACI Structural Journal. ▪ Reviewer for the Journal of Testing and Evaluation (JTE). ▪ Reviewed papers for the International Conference on Concrete Repair Rehabilitation and Retrofitting (ICCRRR 2012 and 2015) and the fib 2016 symposium.
TECHNICAL PRESENTATIONS	<p>Research Methodology and Communication Feb 2016</p> <ul style="list-style-type: none"> ▪ Presentation made to final year undergraduate and postgraduate research students - MSc. and PhD - at the Department of Civil Engineering, University of Nairobi in Nairobi, Kenya on the 05th of February 2016. <p>Rethinking the Design of Patch Repair Mortars for Cracking Resistance Sep 2015</p> <ul style="list-style-type: none"> ▪ Presentation made at the Monthly Technical Meeting of the Concrete Society of Southern Africa (CSSA) Western Cape Branch in Cape Town, South Africa on the 17th of September 2015.
SKILLS AND COMPETENCIES	<p>Design Thinking, Mar 2016 – Jun 2016</p> <ul style="list-style-type: none"> ▪ Completed a Foundation Course in Design Thinking at the Hasso Plattner Institute of Design Thinking at the University of Cape Town from (March - May 2016). <p>Communication, Leadership and Organisation,</p> <ul style="list-style-type: none"> ▪ Recipient of Advanced Communicator Bronze (ACB), Competent Communicator (CC) and Competent Leader (CL) awards from Toastmasters International. ▪ Leader of the Academics portfolio at the Faculty of Engineering and the Built Environment Postgraduate Students Council (EBEPGSC) at the University of Cape Town (2014). ▪ Held various leadership portfolios within the UCT Toastmasters Club (2016 - 2018). ▪ Participated in the organisation of workshops, monthly technical meetings and international conferences - International Conference on Concrete Repair, Rehabilitation and Retrofitting (ICCRRR 2012), Concrete Society of Southern Africa Monthly Technical Meetings of the Western Cape Branch (2014 - 2017).
COMMUNITY INVOLVEMENT	<p>Volunteer and Team Member, The REAL Village Oct 2013 – Present</p> <p>Mentorship and giving talks on leadership and other issues that are relevant to the youth and young adults.</p>
HOBBIES	Singing, Photography, Soccer and Scrabble.
REFERENCES	<p>Emeritus Professor Mark Alexander University of Cape Town, Department of Civil Engineering Concrete Materials and Structural Integrity Research Unit (CoMSIRU) (Co- Director) ☎ Tel. : +27 (021) 650-4012 📠 Fax: +27 (021) 689-7471 ✉ Mark.Alexander@uct.ac.za</p> <p>Professor Denis Kalumba Department of Civil Engineering, University of Cape Town ☎ Tel. : +27 (021) 650-2590 📠 Fax: +27 (021) 689-7471 ✉ Denis.Kalumba@uct.ac.za</p> <p>Dr. Mike Otieno School of Civil and Environmental Engineering, University of the Witwatersrand ☎ Tel. : +27 (011) 717-7117 📠 Fax: +27 (011) 717-7045 ✉ Mike.Otieno@wits.ac.za</p>