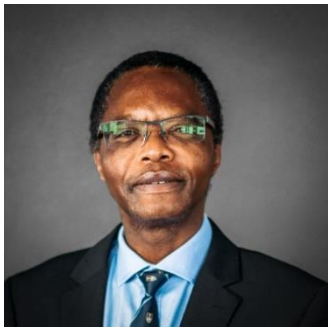
Prof. Alphose Zingoni – Bio Information



Alphose Zingoni is Professor of Structural Engineering and Mechanics in the Department of Civil Engineering at the University of Cape Town. He earned an MSc (with distinction) and a PhD from Imperial College London in 1992, and was a Research Fellow of the Royal Commission for the Exhibition of 1851 at the same institution from 1992 to 1994. He held a senior leadership appointment as Dean of the Faculty of Engineering at the University of Zimbabwe from 1996 to 1999. He moved to the University of Cape Town in 1999, where he was promoted to Full Professor in 2002, and served a 5-year term (2008-2012) as Head of the Department of Civil Engineering.

Broadly, his research has sought to harness a better understanding of how structures behave (structural mechanics), thus achieving more efficient solutions for engineering problems, and more sustainable designs for engineering structures. The work, while of a fundamental nature, aligns with SDG 9 of the UN Sustainable Development Goals. He has focused on two main areas, namely: (i) the development of analytical methods for shell structures and innovative use of the shell form in providing more efficient structural solutions; (ii) studies of symmetry and the development of group-theoretic formulations for problems in structural mechanics. With regard to the first area, he has been at the forefront of exploring novel shell forms for high-capacity liquid-containment applications (such as more efficient and eco-friendly "egg-shaped" sludge digesters for wastewater treatment in urban environments), and more recently, he has pioneered the concept of dual-purpose concrete shells as a form of sustainable engineering, to maximize the functionality of the shell while minimizing the consumption of construction materials and energy. With regard to the second area (where he has gained international prominence by being among the first engineers to bring the mathematics of group theory into computational engineering), his studies of symmetry and associated computational methods are providing much-needed analytical tools for the optimal design of spatial structures on land, under water and in space, to achieve minimal usage of materials, lightness of construction and a low carbon footprint over the lifetime of the structure.

He has written over 100 papers in the above areas, and authored 4 books, including the award-winning book "*Shell Structures in Civil and Mechanical Engineering*" (ICE Publishing, 2018) and the book "*Vibration Analysis and Structural Dynamics for Civil Engineers: Essentials and Group-Theoretic Formulations*" (Taylor & Francis, 2015), acclaimed by reviewers for its innovative use of group theory in solving structural vibration problems. He has guest-edited eight special issues of leading international journals in structural engineering, all published by Elsevier: *Engineering Structures* (2002, 2005, 2020); *Thin-Walled Structures* (2002); *Computers and Structures* (2020); *Journal of Constructional Steel Research* (2002, 2006); *Structures* (2024). He is the founder and chair of the SEMC (Structural Engineering, Mechanics and Computation) series of international conferences, held in Cape Town every 3 years since 2001, and has been the editor of the Proceedings of all nine conferences to date; these Proceedings feature a combined total of nearly 3,000 peer-reviewed papers covering all areas of structural engineering. He serves on the editorial boards of several Elsevier journals, and has served on the scientific committees of numerous international conferences in structural engineering and related areas. He also serves on the Editorial Board of the Springer book series *Computational Methods in Engineering & the Sciences*.

In 2023, Zingoni was awarded the **A1** rating by the NRF (National Research Foundation of South Africa) in recognition of his internationally leading research. His other honours and recognitions include being elected a Fellow of the Institution of Structural Engineers (London, 2005), a Fellow of the International Association of Bridge and Structural Engineering (Zurich, 2011), a Fellow of the South African Academy of Engineering (2008), and a Member of the Academy of Sciences of South Africa (2005). In 2016, he was elected a Fellow of the University of Cape Town in recognition of "original distinguished academic work", and in 2019, he won the University of Cape Town Book Award for his book on shell structures. Every year since 2021, he has been consistently included in the Elsevier/University of Stanford list of "Top 2% Scientists in the World", which is based on weighted citations as captured in Scopus (the Elsevier database).

Professionally, he is registered as a Chartered Engineer with the Engineering Council of the UK, and as a Professional Engineer with the Engineering Council of South Africa. He has also contributed substantially to the professional development of many other engineers in Southern Africa. In 2007, he launched a first-of-its-kind series of nationwide short courses on the Structural Eurocodes, with the aim of preparing local engineers for a possible shift towards the Eurocode system of design. These courses were attended by more than 1000 senior engineers and decision makers over a period of 6 years, and greatly helped in giving direction to the country. In collaboration with leading international experts, he has also organised short courses on earthquake engineering, high-rise buildings, long-span structures, bridge design and other specialist topics. He has also served on committees of the National Research Foundation in various leadership capacities.

At the University of Cape Town, he has taught more than 2,000 students of civil engineering over 25 years, and supervised more than 100 undergraduate research projects and over 30 postgraduate research theses. From 2014 to 2024 (10 years), he also served as the director of a university-wide initiative that has aimed at identifying and nurturing talented undergraduate students with the potential to become the future leaders of society, industry and business on the African continent. ▪

Curriculum Vitae: A. ZINGONI

January 2026

1. PERSONAL INFORMATION AND CONTACT DETAILS

Full Name:	Alphose Zingoni
Institution:	University of Cape Town (since June 1999)
Position:	Full Professor, Department of Civil Engineering
Specialisation:	Structural Engineering and Mechanics
Address:	Rondebosch 7701, Cape Town, South Africa
Tel/Email:	Tel: 27 21 650 2601 / Email: alphose.zingoni@uct.ac.za

2. ACADEMIC QUALIFICATIONS

PhD	Imperial College London: 1992
MSc (Eng), DIC	Imperial College London: 1988
BSc (Eng) Hons	University of Zimbabwe: 1984

3. PROFESSIONAL REGISTRATIONS

CEng	Chartered Engineer, Engineering Council of the UK: 1995
PrEng	Professional Engineer, Engineering Council of South Africa: 2006

4. CAREER APPOINTMENTS

1985-87	Graduate Civil Engineer, Zimbabwe (15 months in Design Office; 12 months on Site)
1992-94	Postdoctoral Research Fellow, Imperial College London, UK
1995-98	Senior Lecturer/Associate Professor, Dept. of Civil Engineering, Univ. of Zimbabwe
1997-99	Dean, Faculty of Engineering, Univ. of Zimbabwe (3-year term)
1999-2001	Associate Professor, Dept. of Civil Engineering, Univ. of Cape Town
2002 to date	Full Professor, Dept. of Civil Engineering, Univ. of Cape Town
2008-2012	Head of Department, Dept. of Civil Engineering, Univ. of Cape Town (5-year term)

5. HONOURS, AWARDS AND DISTINCTIONS

- 2023: Awarded the **A1** rating by the NRF (National Research Foundation of South Africa). The NRF defines A-rated researchers as those "who are unequivocally recognised by their peers as leading international scholars in their field for the high quality and impact of their recent research outputs".
- 2021 onwards: Included in the Elsevier/Stanford list of "Top 2% Scientists in the World"
- 2019: Won the **UCT Book Award** for the book **"***Shell Structures in Civil and Mechanical Engineering*"
- 2016: Elected a **Fellow of UCT** (University of Cape Town) for "original distinguished academic work"
- 2016: Awarded a **B1** rating by the NRF (recognition as an upper-bracket internationally acclaimed researcher)
- 2012: Invited to present a lecture at a themed interdisciplinary scientific meeting of the Royal Society
- 2011: Elected a **Fellow** of the International Assn for Bridge & Structural Engineering (Zurich)
- 2010: Awarded a **B2** rating by the NRF for the 2nd time (recognition as an internationally acclaimed researcher)
- 2008: Elected a **Fellow** of the South African Academy of Engineering
- 2005: Elected a **Fellow** of the Institution of Structural Engineers (London)
- 2005: Elected a Member of the Academy of Sciences of South Africa
- 2005: Awarded a **B2** rating by the NRF for the 1st time (recognition as an internationally acclaimed researcher)
- 1996: Commissioned by UNESCO to lead the writing of a textbook for African universities.
- 1992: Awarded a Research Fellowship of the Royal Commission for the Exhibition of 1851 of the United Kingdom. At that time, a total of only 6 such awards were made annually to the best PhD graduates in the combined science, engineering and mathematical disciplines.
- 1980: Recipient of the Beit Scholarship and the Winston Churchill Memorial Trust Scholarship (Zimbabwe) for undergraduate studies, for best Cambridge O-Level & A-Level examination results in Zimbabwe for 1978 & 1980.

6. EDITORIAL BOARDS OF INTERNATIONAL JOURNALS

- *Computers and Structures* (Elsevier Science Journal): from 2013 - Present
- *Engineering Structures* (Elsevier Science Journal): from 2009 - Present
- *Thin-Walled Structures* (Elsevier Science Journal): from 2009 - Present
- *Structures* (Elsevier Science/Institution of Structural Engineers Journal): from 2014 – Present
- *Computational Methods in Engineering & the Sciences* (Springer Book Series): 2021 - Present.
- *Journal of Constructional Steel Research* (Elsevier Science Journal): 2002-2011
- *Engineering and Computational Mechanics* (Institution of Civil Engineers Journal): 2010-2013
- *Case Studies in Structural Engineering* (Elsevier Science Journal): 2014-2016

7. INTERNATIONAL SCIENTIFIC COMMITTEES

This is a selection. Not all are included.

- Member, Scientific Committee, International Colloquium on Stability and Ductility of Steel Structures, Barcelona (Spain), 8-10 September 2025.
- **Chair**, Ninth International Conference on Structural Engineering, Mechanics and Computation, Cape Town (South Africa), 1-3 September 2025
- Member, International Scientific Committee, 13th International Conference on Advances in Steel-Concrete Composite Structures, Hong Kong (China), 11-13 December 2024
- Member, Scientific Committee, 4th International Conference on Recent Advances in Design, Resilience and Strengthening of Structures, Coimbra (Portugal), 16-18 October 2023
- **Chair**, Eighth International Conference on Structural Engineering, Mechanics and Computation, Cape Town (South Africa), 5-7 September 2022
- Member, Scientific Committee, Symposium of the International Association for Bridge and Structural Engineering (IABSE), Prague (Czech Republic), 25-27 May 2022
- Member, International Editorial Board, Fourteenth International Conference on Computational Structures Technology, Palma (Spain), 31 August - 2 September 2021
- Member, Scientific Committee, Annual Symposium of the International Association for Shell and Spatial Structures (IASS) and the 7th International Conference on Spatial Structures, Guildford (UK), 23-27 August 2021
- Member, International Scientific Committee, Eighth International Conference on Coupled Instabilities in Metal Structures, Lodz (Poland), 12-14 July 2021
- Member, International Scientific Committee, Fourteenth International Conference on Metal Structures, Poznań (Poland), 16-18 June 2021
- Member, Scientific Committee, IABSE Symposium, New Delhi (India), 14-16 April 2021
- **Chair**, Seventh International Conference on Structural Engineering, Mechanics and Computation, Cape Town (South Africa), 2-4 September 2019
- Member, Scientific Committee, IABSE Symposium, Guimaraes (Portugal), 27-29 March 2019
- Member, International Editorial Board, Thirteenth International Conference on Computational Structures Technology, Barcelona (Spain), 4-6 September 2018
- Member, International Scientific Committee, First International Conference on Engineering Research and Practice for Steel Construction, Hong Kong (China), 5-7 September 2018
- Member, International Scientific Committee, Eighth International Conference on Thin-Walled Structures, Lisbon (Portugal), 24-27 July 2018
- Member, Scientific Committee, Twelfth International Conference on Advances in Steel-Concrete Composite Structures, Valencia (Spain), 27-29 June 2018
- **Chair**, Sixth International Conference on Structural Engineering, Mechanics and Computation, Cape Town (South Africa), 5-7 September 2016
- Member, International Editorial Board, Twelfth International Conference on Computational Structures Technology, Naples (Italy), 2-5 September 2014
- **Chair**, Fifth International Conference on Structural Engineering, Mechanics and Computation, Cape Town (South Africa), 2-4 September 2013
- Member, International Editorial Board, Eleventh International Conference on Computational Structures Technology, Dubrovnik (Croatia), 4-7 September 2012
- Member, International Scientific Committee, Tenth International Conference on Advances in Steel-Concrete Composite and Hybrid Structures, Singapore (Singapore), 2-4 July 2012

- Member, International Scientific Committee, Third International Symposium on Ultra-High Performance Concrete, Kassel (Germany), 7-9 March 2012
- Member, International Scientific Committee, Twelfth International Conference on Metal Structures, Wroclaw (Poland), 15-17 June 2011
- Member, International Scientific Committee, Seventh International Conference on Steel and Aluminium Structures, Sarawak (Malaysia), 13-15 July 2011
- Member, International Editorial Board, Tenth International Conference on Computational Structures Technology, Valencia (Spain), 14-17 September 2010
- **Chair**, Fourth International Conference on Structural Engineering, Mechanics and Computation, Cape Town (South Africa), 6-8 September 2010
- Member, International Editorial Board, Twelfth International Conference on Civil, Structural and Environmental Engineering Computing, Madeira (Portugal), 1-4 September 2009
- Member, International Scientific Committee, Ninth International Conference on Steel-Concrete Composite and Hybrid Structures, Leeds (United Kingdom), 8-10 July 2009
- Member, International Editorial Board, Ninth International Conference on Computational Structures Technology & Sixth International Conference on Engineering Computational Technology, Athens (Greece), 2-5 September 2008
- Member, International Scientific Committee, Fifth International Conference on Advances in Steel Structures, Singapore (Singapore), 5-7 December 2007
- Member, International Editorial Board, Eleventh International Conference on Civil, Structural and Environmental Engineering Computing, St. Julians (Malta), 18-21 September 2007
- **Chair**, Third International Conference on Structural Engineering, Mechanics and Computation, Cape Town (South Africa), 10-12 September 2007
- Member, International Advisory Committee, Sixth International Conference on Steel and Aluminium Structures, Oxford (UK), 1-4 July 2007
- Member, International Editorial Board, Eighth International Conference on Computational Structures Technology, Las Palmas (Canaria), 12-15 September 2006
- Member, International Scientific Committee, Eleventh International Conference on Metal Structures, Rzeszow (Poland), 21-23 June 2006
- Member, International Editorial Board, Tenth International Conference on Civil, Structural and Environmental Engineering Computing, Rome (Italy), 30 August-2 September 2005
- Member, International Scientific Advisory Board, International Conference on Concrete Repair, Rehabilitation and Retrofitting, Cape Town (South Africa), 21-23 November 2005
- Member, International Editorial Board, Seventh International Conference on Computational Structures Technology, Lisbon (Portugal), 7-9 September 2004
- Member, International Advisory Committee, Second International Conference on FRP Composites in Civil Engineering, Adelaide (Australia), 8-10 December 2004
- **Chair**, Second International Conference on Structural Engineering, Mechanics and Computation, Cape Town (South Africa), 5-7 July 2004
- Member, International Scientific Advisory Board, Second M.I.T. Conference on Computational Fluid and Solid Mechanics, Cambridge, Massachusetts (USA), 17-20 June 2003
- Member, International Advisory Board, International Conference on Advances in Structures: Steel, Concrete, Composite and Aluminium, Sydney (Australia), 23-25 June 2003
- Member, International Organising Committee, Fifth International Conference on Space Structures, Surrey (UK), 19-22 August 2002
- Member, International Editorial Board, Sixth International Conference on Computational Structures Technology & Third International Conference on Engineering Computational Technology, Prague (Czech Republic), 4-6 September 2002
- Member, International Editorial Board, Eighth International Conference on Civil and Structural Engineering Computing, Vienna (Austria), 19-21 September 2001
- **Chair**, First International Conference on Structural Engineering, Mechanics and Computation, Cape Town (South Africa), 2-4 April 2001
- South African Alternate Delegate to the Permanent Committee of the International Association for Bridge and Structural Engineering (IABSE), Zurich, Switzerland, 2002-date
- Member of Council, South African Association for Theoretical and Applied Mechanics, 2000-2004
- Member, Committee of the Joint Structural Division of the South African Institution of Civil Engineering (SAICE) and the Institution of Structural Engineers (IStructE), 2004-2015

8. REVIEWING FOR JOURNALS, GUEST-EDITING & INVITED LECTURES

- Reviewer for the international journals *Computers and Structures* (Elsevier Science), *Engineering Structures* (Elsevier Science), *International Journal of Solids & Structures* (Elsevier Science), *Thin-Walled Structures* (Elsevier Science), *International Journal of Mechanical Sciences* (Elsevier Science), *Journal of Sound & Vibration* (Elsevier Science), *Journal of the Mechanics and Physics of Solids* (Elsevier Science), *Finite Elements in Analysis & Design* (Elsevier Science), *International Journal for Numerical Methods in Engineering* (John Wiley), *Communications in Numerical Methods in Engineering* (John Wiley), *International Journal of Pressure Vessels & Piping* (Elsevier Science), *Journal of Constructional Steel Research* (Elsevier Science), *Structures* (Elsevier Science/Institution of Structural Engineers), *Advances in Structural Engineering* (Multi-Science), *Engineering Computations* (Emerald), *Journal of Structural Engineering* (ASCE), *Ocean Engineering* (Elsevier), and others
- Guest Editor of 8 Special Issues of international journals (i) *Thin-Walled Structures* (Vol. 40, Nos. 7 & 8, 2002), (ii) *Engineering Structures* (Vol. 24, No. 7, 2002); (iii) *Journal of Constructional Steel Research* (Vol. 58, No. 10, 2002); (iv) *Engineering Structures* (Vol. 27, No. 12, 2005); (v) *Journal of Constructional Steel Research* (Vol. 62, Nos. 1 & 2, 2006); (vi) *Computers and Structures* (Vol. 232, 2020); (vii) *Engineering Structures* (Vol. 217, 2020); (viii) *Structures* (Vols. 53, 54, 55, 56, 57, 58, 60 & 61, 2024). Have also served as an Invited Guest Editor for the *Bulletin of the Polish Academy of Sciences: Technical Sciences* (Vol. 71, No. 1, 2023).
- Plenary Lecture, International Conference on Lightweight Structures in Civil Engineering, Lodz (Poland), 2021
- Invited Presentation (Movers & Shakers, Spatial Structures Research Centre, University of Surrey), in conjunction with the Annual Symposium of the International Association for Shell and Spatial Structures (IASS) and the 7th International Conference on Spatial Structures, Guildford (UK), 2021
- Invited Speaker, Royal Society Theo Murphy Scientific Meeting on *Rigidity of Periodic and Symmetric Structures in Nature and Engineering*, Kavli Royal Society International Centre, Chicheley, Buckinghamshire (UK), 2012
- Invited Lecture, Eleventh International Conference on Computational Structures Technology, Dubrovnik (Croatia), 2012
- Invited Lecture, Twelfth International Conference on Civil, Structural and Environmental Engineering Computing, Madeira (Portugal), 2009
- Invited Lecture, Tenth International Conference on Civil, Structural and Environmental Engineering Computing, Rome (Italy), 2005
- Invited Lecture, Sixth International Conference on Computational Structures Technology & Third International Conference on Engineering Computational Technology, Prague (Czech Republic), 2002
- Reviewer of funding proposals for national research agencies of the UK, Canada, Italy, Finland and South Africa; PhD Examiner for universities in Australia, Hong Kong, UK, Canada etc.

9. NATIONAL COMMITTEE INVOLVEMENTS & OTHER SERVICE ROLES

- Member, Evaluation and Rating Specialist Panel for Engineering, National Research Foundation (2008-2009)
- Convenor, Evaluation and Rating Specialist Panel for Engineering, National Research Foundation (2010-2011)
- Assessor, Evaluation and Rating Panels (Various), National Research Foundation (2017-2020)
- Chair, Evaluation and Rating Panels (Various), National Research Foundation (from 2025)
- Member, Joint Structural Division of the South African Institution of Civil Engineering and the UK Institution of Structural Engineers (2005-2015)
- Team Member, Accreditation of the BEng Civil Engineering Degree Programme of the University of Pretoria, Engineering Council of South Africa (2017)
- Director, Klaus-Jürgen Bathe Leadership Programme, University of Cape Town (2014-2024). This was an initiative aimed at identifying and nurturing talented undergraduate students with the potential to become the future leaders of business, industry and society on the African continent.

10. INDUSTRY INITIATIVES

- In 2007, and in collaboration with renowned experts from the UK and the Netherlands, I launched a series of nationwide short courses on the Structural Eurocodes, with the aim of better preparing the South African engineering community for a possible shift towards the Eurocode system of design. These were attended by more than 1000 engineers/decision makers over a period of 6 years, and greatly helped in giving direction to the country.
- I have also contributed to the professional development of many engineers in Southern Africa, by organising short courses on earthquake engineering, high-rise buildings, long-span structures, bridge design and other topics.

11. RESEARCH AREAS

• Development of practical methods for the analysis and investigation of the structural behaviour of shell structures
• Innovative use of the shell form in providing more efficient solutions for the storage of water and industrial liquids
• Feasibility of dual-purpose/multi-purpose concrete shells as a more sustainable form of engineering construction
• Studies of symmetry in spatial structures (cable nets, space grids, etc), and how this influences structural behaviour
• Development of group-theoretic formulations for problems of statics, vibration and stability in structural mechanics.

12. PEER-REVIEWED PUBLICATIONS

Summary:

- 4 Authored Books (Sole Author of 3; Lead Author of 1)
- 9 Edited Conference Proceedings (Sole Editor of All 9)
- 1 Chapter in a Book (Sole Author)
- 8 Guest-Edited Special Issues of International Journals (Sole Editor of 5; Lead Editor of 3)
- Over 100 Papers in Peer-Reviewed International Journals and Conference Proceedings

12.1 BOOKS

Authored

Zingoni A. (2018). *Shell Structures in Civil and Mechanical Engineering: Theory and Analysis (Second Edition)*. ICE Publishing, London, 464 pp. ISBN 978-0-7277-6028-9. Book Reviews: *Thin-Walled Structures* (Elsevier), Vol. 130, 2018, Page 652; *Computers and Structures* (Elsevier), Vol. 197, 2018, Page 70; *The Structural Engineer* (Institution of Structural Engineers, London), March 2019, Page 37.

Zingoni A. (2015). *Vibration Analysis and Structural Dynamics for Civil Engineers: Essentials and Group-Theoretic Formulations.* CRC Press/Taylor & Francis, London, 275 pp. ISBN 978-0-415-52256-4. Book Reviews: *Computers and Structures* (Elsevier), Vol. 160, 2015, Page 56; *The Structural Engineer* (Institution of Structural Engineers, London), August 2015, Page 57; *Structures and Buildings* (ICE Publishing), Vol. 168 (10), October 2015, Page 772.

Zingoni A., Mwakali J.A. and Salahuddin A. (2000). *Theory and Analysis of Structures: Trusses, Beams, Frames, Plates and Shells*. UNESCO, Nairobi, 222 pp. ISBN 92-9158-012-0.

Zingoni A. (1997). *Shell Structures in Civil and Mechanical Engineering: Theory and Closed-Form Analytical Solutions*. Thomas Telford Publishing, London, 350 pp. ISBN 0-7277-2574-2.

Edited

Zingoni A. (Editor) (2025). *Engineering Materials, Structures, Systems and Methods for a More Sustainable Future*. CRC Press (Taylor & Francis), London, 1680 pp. ISBN: 978-1-003-67789-5.

Zingoni A. (Editor) (2022). *Current Perspectives and New Directions in Mechanics, Modelling and Design of Structural Systems*. CRC Press (Taylor & Francis), London, 2076 pp. ISBN: 978-1-003-34844-3.

Zingoni A. (Editor) (2019). *Advances in Engineering Materials, Structures and Systems: Innovations, Mechanics and Applications.* CRC Press/Balkema (Taylor & Francis), London, 2434 pp. ISBN 978-1-138-38696-9.

Zingoni A. (Editor) (2016). *Insights and Innovations in Structural Engineering, Mechanics and Computation.* CRC Press/Balkema (Taylor & Francis), London, 2250 pp. ISBN: 978-1-138-02927-9 (Book + CD-ROM).

Zingoni A. (Editor) (2013). *Research & Applications in Structural Engineering, Mechanics and Computation.* CRC Press/Balkema (Taylor & Francis), London, 2750 pp. ISBN: 978-1-138-00061-2 (Book + CD-ROM).

Zingoni A. (Editor) (2010). *Advances and Trends in Structural Engineering, Mechanics and Computation*. A.A. Balkema/Taylor & Francis Group, London, 1500 pp. ISBN 978-0-415-58472-2 (Book + CD-ROM).

Zingoni A. (Editor) (2007). *Recent Developments in Structural Engineering, Mechanics and Computation*. Millpress Science, Rotterdam, 2097 pp. ISBN 978 90 5966 054 0 (Book + CD-ROM).

Zingoni A. (Editor) (2004). *Progress in Structural Engineering, Mechanics and Computation*. A.A. Balkema/Taylor & Francis, London, 1800 pp. ISBN 90 5809 568 1 (CD-ROM 90 5809 698 X).

Zingoni A. (Editor) (2001). *Structural Engineering, Mechanics and Computation* (2 volumes). Elsevier Science, Oxford, 1660 pp. ISBN 0080439489.

12.2 CHAPTER IN BOOK

Zingoni A. (2002). Chapter 12: Group-Theoretic Applications in Solid and Structural Mechanics: A Review. In Computational Structures Technology (edited by B.H.V. Topping & Z. Bittnar), Saxe-Coburg Publications, Stirling (Scotland), pp. 283-317. ISBN 1-874672-16-4.

12.3 GUEST-EDITED ISSUES OF INTERNATIONAL JOURNALS

Zingoni A. (Managing Guest Editor), Bradford M. (Guest Editor) and Gardner L. (Guest Editor) (2024). Virtual Special Issue: Advances in Buckling of Structures: Mechanics, Analysis and Design (8 articles). *Structures*, Vols. 53, 54, 55, 56, 57, 58, 60 & 61, Elsevier Science, Oxford.

Szafran J. (Lead Guest Editor), Zingoni A. (Invited Guest Editor), Repetto M.P. (Guest Editor) and Kaminski M. (Guest Editor) (2023). Special Section: Lightweight structures in civil engineering: Contemporary problems (8 articles). *Bulletin of the Polish Academy of Sciences – Technical Sciences*, Vol. 71(1), Polish Academy of Sciences.

Zingoni A. (Lead Guest Editor) and Topping B.H.V. (Guest Editor) (2020). Special Issue: Mechanics and modelling of materials and structures (13 articles). *Computers & Structures*, Vol. 232, Elsevier Science, Oxford.

Zingoni A. (Lead Guest Editor) and Kitipornchai S. (Guest Editor) (2020). Special Issue: Vibration response (11 articles). *Engineering Structures*, Vol. 217, Elsevier Science, Oxford.

Zingoni A. (Guest Editor) (2006). Special Issue: Behaviour, Analysis and Design of Steel Structures (19 articles). *Journal of Constructional Steel Research,* Vol. 62, Numbers 1 & 2, Elsevier Science, Oxford.

Zingoni A. (Guest Editor) (2005). Special Issue: Structural health monitoring, damage detection and long-term performance (13 articles). *Engineering Structures,* Vol. 27, Number 12, Elsevier Science, Oxford.

Zingoni A. (Guest Editor) (2002). Special Issue: Plates and shells: Mechanics and applications (11 articles). *Thin-Walled Structures*, Vol. 40, Numbers 7 & 8, Elsevier Science, Oxford.

Zingoni A. (Guest Editor) (2002). Special Issue: Structural engineering in steel: Recent advances (8 articles). *Journal of Constructional Steel Research*, Vol. 58, Number 10, Elsevier Science, Oxford.

Zingoni A. (Guest Editor) (2002). Special Issue: Advances in damage detection, repair and rehabilitation of engineering structures (7 articles). *Engineering Structures*, Vol. 24, Number 7, Elsevier Science, Oxford.

12.4 ARTICLES IN PEER-REVIEWED INTERNATIONAL JOURNALS

Zingoni A., Enoma N. and Mahlelebe H. (2025). On the bending of non-shallow polynomial shells of revolution. *Thin-Walled Structures*, Vol. 216, Article 113731.

Mudenda K. and Zingoni A. (2024). Steel beam upstands as a strengthening approach for doubly symmetric I-shaped sections. *Structures*, Vol. 68, Article 107154.

Zingoni A. (2024). On group-theoretic eigenvalue vibration analysis of structural systems with C_{6v} symmetry. *Journal of Sound and Vibration*, Vol. 589, Article 118608.

Zingoni A. and Kaluba C. (2024). Decomposition of the degenerate subspace of C_{3v}-symmetric structural configurations. *Engineering Structures*, Vol. 317, Article 118661.

Zingoni A., Bradford M. and Gardner L. (2024). Advances in buckling of structures: Mechanics, analysis and design (Guest Editorial). *Structures*, Vol. 69, Article 107535.

Zingoni A. and Kaluba C. (2024). Computational simplifications and observations on buckling modes of polygonal ring frames under symmetric compressive joint loads. *Structures*, Vol. 60, Article 105904.

Zingoni A. and Kaluba C. (2023). A consistent group-theoretic transformation for the block-diagonalization of structural matrices. *Engineering Structures*, Vol. 295, Article 116708.

Szafran J., Zingoni A., Repetto M.P. and Kaminski M. (2023). Lightweight structures in civil engineering: Contemporary problems. *Bulletin of the Polish Academy of Sciences: Technical Sciences*, Vol. 71(1), Article e144589.

Zingoni A. (2022). Stress and buckling resistance of dual-purpose concrete shells. *Thin-Walled Structures*, Vol. 170, Article 108596.

Kaluba C. and Zingoni A. (2021). Group-theoretic buckling analysis of symmetric plane frames. *ASCE Journal of Structural Engineering*, Vol. 147(Number 10), Article 04021153.

Zingoni A. and Enoma N. (2020). Dual-Purpose Concrete Domes: A Strategy for the Revival of Thin Concrete Shell Roofs. *Structures*, Vol. 28, pp. 2686-2703.

Enoma N. and Zingoni A. (2020). Buckling of an externally pressurised toroidal shell of revolution with a doubly-symmetric parabolic-ogival cross-section. *International Journal of Pressure Vessels and Piping*, Vol. 183, Article 104106.

Zingoni A. (2020). Use of symmetry groups for generation of complex space grids and group-theoretic vibration analysis of triple-layer grids. *Engineering Structures*, Vol. 223, Article 111177.

Enoma N. and Zingoni A. (2020). Analytical formulation and numerical modelling for multi-shell toroidal pressure vessels. *Computers & Structures*, Vol. 232, Article 105811.

Zingoni A. and Enoma N. (2020). On the strength and stability of elliptic toroidal domes. *Engineering Structures*, Vol. 207, Article 110241.

Zingoni A. and Enoma N. (2020). Strength and stability of spherical-conical shell assemblies under external hydrostatic pressure. *Thin-Walled Structures*, Vol. 146, Article 106472.

Zingoni A. and Topping B.H.V. (2020). Mechanics and modelling of materials and structures (Guest Editorial). *Computers & Structures*, Vol. 232, Article 106239.

Zingoni A. and Kitipornchai S. (2020). Vibration response (Guest Editorial). *Engineering Structures*, Vol. 217, Article 110758.

Zingoni A. (2019). On the best choice of symmetry group for group-theoretic computational schemes in solid and structural mechanics. *Computers & Structures*, Vol. 223, pp. 1-17.

Zingoni A. (2019). Group-theoretic vibration analysis of double-layer cable nets of D_{4h} symmetry. *International Journal of Solids & Structures*, Vol. 176/177, pp. 68-85.

Mudenda K. and Zingoni A. (2018). Lateral-torsional buckling behavior of hot-rolled steel beams with flange upstands. *Journal of Constructional Steel Research*, Vol 144, pp. 53-64.

Zingoni A. (2018). Insights on the vibration characteristics of double-layer cable nets of D_{4h} symmetry. *International Journal of Solids & Structures*, Vol. 135, pp. 261-273.

Zingoni A., Enoma N. and Govender N. (2015). Equatorial bending of an elliptic toroidal shell. *Thin-Walled Structures*, Vol. 96, pp. 286-294.

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12.5 ARTICLES IN PEER-REVIEWED NATIONAL JOURNALS

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12.6 ARTICLES IN PEER-REVIEWED INTERNATIONAL CONFERENCE PROCEEDINGS

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Zingoni A., Pavlovic M.N., Lloyd-Smith D. and Zlokovic G.M. (1993). Group-theory considerations of finite-difference plate eigenvalue problems. In *Developments in Computational Engineering Mechanics* (edited by B.H.V. Topping). Civil-Comp Press, Edinburgh, pp. 243-256.

13. POSTGRADUATE STUDENTS SUPERVISED

13.1 PhD Students (360 Credit Theses)

Current:

- Cloepas Mpofu: Investigation of the vibration behaviour of symmetric cable nets of polygonal plan form and with non-orthogonal cable intersections
- Prosper Marindiko: Dual and Multi-Purpose Use of Thin Concrete Shells
- Batho Mokhothu: New shell forms for concrete arch dams of double curvature
- Abdulkadir Ibrahim: Torsional buckling resistance of tapered steel sections (currently on LOA)

Graduated:

- Chisanga Kaluba: Influence of symmetry on the buckling behaviour of plane and space frames. Supervised 2018-2024. University of Cape Town. PhD awarded in 2024.
- Edwige Songong: Nonlinear vibration of beams and plates resting on elastic foundations having nonlinear stiffness properties. Supervised 2018-2023. University of Cape Town. PhD awarded in 2023.
- Kenny Mudenda: Lateral-torsional buckling behaviour of monosymmetric steel sections formed with flange upstands. Supervised 2016-2023 (part-time studies). University of Cape Town. PhD awarded in 2023.
- Nosa Enoma: Studies on strength and stability of toroidal shell forms for containment applications. Supervised 2015-2018. University of Cape Town. PhD awarded in 2018.
- Sifiso Nhleko: Vibration modelling of grandstands. Supervised only for 1 year (2007-2008). Student continued work at Oxford University. PhD (Cambridge) awarded in 2011.
- Kudzai Mawire: Soil-structure interaction model for foundations on expansive clay. Supervised 1998-2002. Univ. of Zimbabwe/NTNU registered. PhD awarded in 2002.

13.2 MSc Students (120/180 Credit Theses)

Current:

- Kholofelo Makgabo: Stress and buckling analysis of liquid-containing semi-toroidal shells: 120 cr
- Joshua Mukurazhizha: Boundary-condition modelling for the stress analysis of liquid-filled general cylindrical shells: 180 cr
- Patrick Mwaka: Stress and stability behaviour of polynomial shells of revolution: 120 cr
- Hlaly Mphatle: Structural analysis of novel liquid containment shell structures: 120 cr

Graduated:

- Hlasoa Mahlelebe (2023): Investigating the structural feasibility of shells of revolution of negative Gaussian curvature when used as liquid-storage vessels: 120 cr
- Malefetsane Letsika (2023): Buckling behavior of thin concrete arch dams: 120 cr
- Liam Walton (2021): Lateral-torsional buckling behaviour of steel beams with web-openings: 120 cr
- Pranava Naidoo (2019): Stresses in egg-shaped sludge digesters in the form of ellipsoidal shells of revolution: 120 cr
- Adam Mosam (2017): Non-linear vibration of cable nets: 120 cr
- Nishalin Govender (2017): Buckling of elliptic toroidal vessels: 120 cr
- Grant Kucherera (2016): Vibration and stability of hyperbolic cooling towers: 120 cr
- Jonathan Adams (2012): Collapse behaviour of double-layer space grids: 120 cr
- Muzzammil Sulaiman (2011): Behaviour of tensegrity space structures: 120 cr
- Batho Mokhothu (2011): Buckling behaviour of doubly curved concrete arch dams: 120 cr
- Vandy French (2009): Numerical modelling of thin concrete arch-dam shells: 120 cr

- Rugare Masendeke (2008): Buckling of stiffened steel conical shells: 120 cr
- Kenny Mudenda (2008): Behaviour of tubular steel joints (now SL at UCT): 120 cr
- Jameson Mtanga (2008): Dynamics of overhead power transmission lines: 120 cr
- Mohsin Tajbhai (2007): Stress analysis of ellipsoidal containment vessels: 120 cr
- Sifiso Nhleko (2006): Crowd-induced vibration of sports grandstands: 120 cr
- Brett Steyn (2005): Finite element buckling analysis of steel shells: 120 cr
- Gaylord Mupona (2004): Development of timber space-frame connectors: 180 cr
- Ishaq Ebrahim (2003): Development of a tie for brickwork masonry: 120 cr
- Daniel Murambadoro (2003): Stresses in egg-shaped sludge digester shells: 120 cr
- Olumide Ajayi (2003): Stress analysis of hyperbolic cooling-tower shells: 120 cr
- Lars Grunitz (2002): Effect of weld-induced residual stresses in steel shells: 180 cr

13.3 MEng Students (60/180 Credit Theses)

- Several minor dissertations (60 cr) also supervised over the past 20 years.

14. DEGREEE COURSES TAUGHT AT UNIVERSITY OF CAPE TOWN

- CIV5100F/S: Plates & Shells (Masters Level): 2000-Present (Convenor & Lecturer): 16 credits
- Structural Dynamics (Masters Level): 2001-2006 (Convenor & Lecturer): 16 credits
- CIV2041S: Structural Analysis I (BSc Civil Eng Second Year): 2016-Present (Convenor & Lecturer): 16 credits
- CIV 3048F: Structural Analysis II (BSc Civil Eng Third Year): 2016-Present (Convenor & Lecturer): 16 credits
- CIV4044S: Supervision of BSc Civil Eng Final Year Theses (Average of 5 students a Year): 1999-Present (Sole/Principal Supervisor): 32 credits
- Structural Engineering IV (BSc Civil Eng Final Year): 2001-2012: (Convenor & Lecturer): 16 credits
- Structural Engineering III (BSc Civil Eng Third Year): 2005-2015 (Lecturer): 16 credits
- Structural Engineering II (BSc Civil Eng Second Year): 1999-2000 (Convenor & Lecturer): 16 credits
- Structural Engineering II (BSc Civil Eng Second Year): 2014-2015 (Convenor & Lecturer): 16 credits

15. WEBSITES PROVIDING MORE INFORMATION

15.1 Personal Webpage, Department of Civil Engineering, University of Cape Town:
https://ebe.uct.ac.za/department-civil-engineering/prof-alphose-zingoni

15.2 Fellows of the University of Cape Town:
https://uct.ac.za/explore-uct-awards-achievements/fellows-uct

15.3 NRF A-Rated Researchers, University of Cape Town:
https://uct.ac.za/research-innovation-leading-researchers/nrf-rated

15.4 NRF at 25 years: Stories of Impact:
https://www.nrf.ac.za/nrf-25-years-prof-alphose-zingoni/

15.5 Wikipedia: Alphose Zingoni:
https://en.wikipedia.org/wiki/Alphose_Zingoni

15.6 Joint Recipient of 2019 UCT Book Award:
https://uct.ac.za/research-innovation-awards/uct-book-award

15.7 Honorary Director, Klaus-Jürgen Bathe Leadership Programme, University of Cape Town:
https://uct.ac.za/kjbathe-leadership/about/alphose-zingoni

15.8 Extraordinary Professor, University of Stellenbosch (Honorary Appointment):
https://civeng.sun.ac.za/staff4/ (see under Complementary Staff)

END