



ISASE 2026: The First International Symposia on Advances in Structural Engineering

Cape Town, South Africa, 7-9 September 2026

Cresta Grande Hotel, Cape Town

Corner Strand/Loop St, Cape Town 8001

FINAL PROGRAMME



SOCIAL FUNCTIONS OF THE SYMPOSIA

WELCOME RECEPTION

Sunday 6 September 2026: 17:00-18:00

Cresta Grande Hotel (Venue of the Symposia)

17:00-18:00	Onsite Registration & Collection of Conference Bags
17:00-17:05	Welcome by the Symposia Chair
17:05-18:00	Welcome Drinks & Eats

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CONFERENCE DINNER

Tuesday 8 September 2026: 19:00-21:00

**The Wild Fig Restaurant, 1 Liesbeek Ave
Observatory, Cape Town 7925**

18:15	Coaches depart from the Cresta Grande Hotel for the Wild Fig
18:45	Coaches arrive at the Wild Fig
19:00	Start of Dinner
21:00	End of Dinner
21:15	Coaches depart from the Wild Fig for the Cresta Grande Hotel

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GENERAL PROGRAMME STRUCTURE

Monday 7 September 2026

08:00-10:00	Onsite Registration & Collection of Conference Bags
08:00-08:30	Arrival Tea and Coffee
08:50-09:00	Introductory Remarks by the Symposia Chair
09:00-10:00	Plenary Session
10:00-10:30	Tea & Coffee Break
10:30-12:30	Parallel Sessions: 2 Streams (A & B)
12:30-14:00	Lunch Break
14:00-15:00	Parallel Sessions: 2 Streams (A & B)
15:00-15:30	Tea & Coffee Break
15:30-16:30	Parallel Sessions: 2 Streams (A & B)

Tuesday 8 September 2026

08:30-09:00	Arrival Tea and Coffee
09:00-10:00	Plenary Session
10:00-10:30	Tea & Coffee Break
10:30-12:30	Parallel Sessions: 2 Streams (A & B)
12:30-14:00	Lunch Break
14:00-15:00	Parallel Sessions: 2 Streams (A & B)
15:00-15:30	Tea & Coffee Break
15:30-16:30	Parallel Sessions: 2 Streams (A & B)
18:30-21:30	Symposia Dinner (venue will be announced at conference)

Wednesday 9 September 2026

08:30-09:00	Arrival Tea and Coffee
09:00-10:00	Plenary Session
10:00-10:30	Tea & Coffee Break
10:30-12:30	Plenary Session
12:30-13:30	Lunch / End of Symposia
13:30-16:30	Optional Sightseeing Tours

PLENARY SESSIONS

Plenary Session 1: Monday 7 September 2026: 09:00-10:00

Session Chair: Prof. Marian Gizejowski, Warsaw University of Technology, Poland

09:00-09:30 Invited Paper: Investigations on buckling resistance of welded HSS box columns, R. Stroetmann, G. Penner, J. Hildebrand.

Speaker: Prof. R. Stroetmann, Dresden University of Technology, Germany

09:30-10:00 Invited Paper: Time-dependent behaviour of composite structural systems, G. Ranzi.

Speaker: Prof. G. Ranzi, University of Sydney, Australia

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Plenary Session 2: Tuesday 8 September 2026: 09:00-10:00

Session Chair: Prof. Richard Stroetmann, Dresden University of Technology, Germany

09:00-09:30 Invited Paper: On analytical solutions regarding the elastic buckling of thin-walled beams and beam-columns of open sections, M.A. Gizejowski, A.M. Barszcz, I. Wojcik-Grzaba.

Speaker: Prof. M. Gizejowski, Warsaw University of Technology, Poland

09:30-10:00 Invited Paper: Structural response of through truss bridge subjected to solar radiation and proposal of its structural integrity assessment, K. Sugiura, R. Sun.

Speaker: Prof. K. Sugiura, Kyoto University, Japan

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Plenary Session 3: Wednesday 9 September 2026: 09:00-10:00

Session Chair: Prof. Kunitomo Sugiura, Kyoto University, Japan

09:00-09:30 Invited Paper: Roller bearing damage and stress distribution of bearing components in a curved box girder bridge, S. Hirahara, M. Matsumura, K. Kawakami, S. Watanabe.

Speaker: Prof. M. Matsumura, Kumamoto University, Japan

09:30-10:00 Invited Paper: Acoustic black hole structures using 3D printed polymer concrete, S. Al Shanti, M. Reda Taha, D. Heras Murcia, B. Treweek.

Speaker: Prof. M. Reda Taha, University of New Mexico, USA

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Plenary Session 4: Wednesday 9 September 2026: 10:30-12:30

Session Chairs: Prof. Mahmoud Reda Taha, University of New Mexico, USA; Prof. Hitoshi Moriyama, Osaka Metropolitan University, Japan

10:30-11:00 Invited Paper: Determination of spring stiffness and of subgrade reaction modulus for sufficient design of foundation and superstructures, M. Seip, S. Fischer, S. Leppla.

Speaker: Prof. S. Leppla, Frankfurt University of Applied Sciences, Germany

11:00-11:30 Invited Paper: Accurate prediction of rail ratcheting under cyclic train loading, F. Ren, Z. Yang, Z. Li.

Speakers: Dr. F. Ren & Prof. Z. Li, TU Delft, Netherlands

11:30-12:00 Invited Paper: A study on the accuracy of updating structural property values using seismic response of existing piers by Bayesian estimation, Y. Kajita, T. Kitahara, M. Kitahara.

Speaker: Prof. Y. Kajita, Kyushu University, Japan

12:00-12:30 Invited Paper: A new innovative approach for fatigue investigations enabled by Concept Chemnitz, M. Golder.

Speaker: Prof. M. Golder, TU Chemnitz, Germany

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PARALLEL SESSIONS

Monday 7 September 2026

Period 1: 10:30-12:30

Stream A: Mechanics 1

Session Chair: Prof. Zili Li, Technical University of Delft, The Netherlands

- 10:30-10:50** Optimal design of uniform-thickness hollow columns against global buckling
H.J. Sun, S.D. Guest
- 10:50-11:10** A fracture-mechanics-based model for axially restrained RC beams under progressive collapse conditions
A. Rubino, F. Kiakoouri, V. De Biagi, B. Chiaia
- 11:10-11:30** Blast-based incremental dynamic analysis for progressive collapse assessment of RC frames
F. Kiakoouri, A. Rubino, B. Chiaia, V. De Biagi
- 11:30-11:50** Finite element analysis of seismic response in eccentrically braced frames
L.H. Mapengo, D.M. Madyira
- 11:50-12:10** Estimating the dynamic coefficients for gas-lubricated journal bearings using a physics-informed neural network surrogate
G. Cabaj, T. Návrát, J. Pokorný, O. Pavlík, L. Houfek
- 12:10-12:30** Design and commissioning of a direct-drive test stand for spiral-groove thrust bearings in high-speed rotor systems
O. Pavlík, J. Pokorny, T. Navrat, G. Cabaj, M. Vajdak

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Stream B: Design 1

Session Chair: Dr. Jawed Qureshi, University of East London, UK

- 10:30-10:50** A hierarchical structural documentation framework for modular timber structures using substructuring
L. Mangliár, L.V. Andersen
- 10:50-11:10** Bond-slip properties of screwed-in threaded rods in glulam
M. Elzeadani, R.M. Foster
- 11:10-11:30** Stress-driven timber floor slabs with segmented ribs from reclaimed engineered wood off-cuts
J.K. Li, L.V. Andersen

- 11:30-11:50** Push-out performance demountable pultruded FRP-timber interfaces for next-generation sustainable hybrid floors
A.K. Gand, R.M. Foster
- 11:50-12:10** Determining high temperature properties of low carbon concrete for designing structures for fire performance
B. Ihekweba, G. Candussi, I. Fowai, M.F. Green
- 12:10-12:30** Axial load performance of thermoplastic-stabilized compressed earth block walls
B. Arab, H. Abdeltawab, M. Haggag, E.Y. Sayed-Ahmed
- 12:30-12:50** Optimization methods for load-bearing structures
K. Deix, C. Müller

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Period 2: 14:00-15:00

Stream A: Mechanics 2

Session Chair: Dr. Kenny Mudenda, University of Cape Town, South Africa

- 14:00-14:20** Assessment of mutual interaction of steel anchors in a concrete substrate
L. Malíková, P. Miarka
- 14:20-14:40** Funicular domes under self-weight: Part I. Mathematical formulations and comparative analysis
R.A. Bradley
- 14:40-15:00** Closed-form solutions for polynomial shells of revolution
P.O. Mwaka, A. Zingoni

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Stream B: Design 2

Session Chair: Prof. Gianluca Ranzi, University of Sydney, Australia

- 14:00-14:20** Double control laws for active mass dampers under multi-hazard loads via damage-index optimization
S. Kleingesinds
- 14:20-14:40** Seismic design and mitigation of elevated steel water storage tanks using friction pendulum isolation systems
M.S. Pourbehi, K.I. Matar

14:40-15:00 Enhancing seismic performance of structures through structural foamed concrete
D. Falliano, D. Gonçalves Dias, L. Restuccia, G.A. Ferro, M. Corrado, P. Shi

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Period 3: 15:30-16:30

Stream A: Mechanics 3

*Session Chair: Dr. Mohammad Pourbehi, Cape Peninsula
University of Technology, South Africa*

15:30-15:50 Analytical post-buckling response of plates under shear load
M. Bohlooly Fotovat

15:50-16:10 Funicular domes under self-weight: Part II. Form-finding and comparative analysis
R.A. Bradley

16:10-16:30 Parametric stress analysis of polynomial shells of revolution
P.O. Mwaka, A. Zingoni

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Stream B: Design 3

Session Chair: Mr. Nicholas Featherston, Ovum Corporation, South Africa

15:30-15:50 A concise review of moment gradient factors used for monosymmetric steel sections in flexure
K. Mudenda

15:50-16:10 A comparative investigation into the flexural behaviour of RC beams strengthened with externally bonded CFRP and FRCM systems
S.D. Ngidi, N.I. Moabelo

16:10-16:30 Numerical Investigation of the buckling behaviour of square reinforced concrete-filled steel tube columns
E.C. Mingambengele, D.M. Madyira

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Tuesday 8 September 2026

Period 1: 10:30-12:30

Stream A: Mechanics 4

Session Chairs: Prof. Markus Golder, Technical University of Chemnitz, Germany; Prof. Steffen Leppla, Frankfurt University of Applied Sciences, Germany

- 10:30-10:50** Distributed acoustic sensing for integrity testing of deep foundation systems
U. Morf, D. Hauswirth, A.M. Puzrin
- 10:50-11:10** 3D-printed mechanically interlocked viscoelastic dampers for efficient energy dissipation
M. Jaradat, E. Soliman, M. Reda Taha
- 11:10-11:30** Development and validation of a finite element bench-mark model for friction pendulum system (FPS) mechanics
M.S. Pourbehi, K.I. Matar
- 11:30-11:50** Influence of diameter and lay angle of wires on load distribution of 1×7 steel strand rope
H. Moriyama, K. Terao, M. Matsumura
- 11:50-12:10** A computational model for analysis of the dynamic response of a quarter-vehicle suspension system
P.L. Sikhakhane, E. Joni, L. Mokgotho, D. Modungwa
- 12:10-12:30** Dynamic blasting verification of process infrastructure in open-pit mining
M. van Staden, C. Croeser, D. van Tonder

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Stream B: Design 4

Session Chairs: Prof. Masahide Matsumura, Kumamoto University, Japan; Prof. Ezzeldin Sayed-Ahmed, American University in Cairo, Egypt

- 10:30-10:50** Shear bond performance of a novel deep trapezoidal profiled sheeting in steel-concrete composite floors
J. Qureshi
- 10:50-11:10** The return of the uni-girder modular system to South Africa
N. Featherston, O. Botha, K. Jackson
- 11:10-11:30** Blackburrow Network Arch Bridge, N3 Market Road Upgrade, Pietermaritzburg
J. Strydom, J. Da Silva, A. Moropane

- 11:30-11:50** Experimental investigation of adhesive thickness on steel-plate-concrete composite action
S.D. Ngidi, S. Dyantyi
- 11:50-12:10** Structural analysis, CAD and design optimization for the Oosterweelknoop Tunnel Connection, Antwerp
M. Strydom, J. Da Silva, T. Judeel
- 12:10-12:30** Radial door design for an ore-pass chute
N. Featherston, A.L. Godden
- 12:30-12:50** Review of the Epworth Underpass on the N3 Corridor, Pietermaritzburg
J. Strydom, J. Da Silva, K. Mampuru

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Period 2: 14:00-15:00

Stream A: Mechanics 5

Session Chair: Dr. Ryan Bradley, University of the Witwatersrand, South Africa

- 14:00-14:20** A review of digital-image-correlation-enabled validation of dynamic finite element models for wind turbine blades
W. Barros, H.M. Ngwangwa, T. Pandelani
- 14:20-14:40** Dynamic verification and mitigation of vibrations on mill floor structure
G. Hulme, M. van Staden, C. Croeser, D. van Tonder
- 14:40-15:00** Modelling of the fluid-structure interaction of the horizontal axis bio-inspired wind turbine blade and effect on annual energy production
A. Netshivhulana, H. Ngwangwa, T. Pandelani, F. Nemavhola, D. Modungwa

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Stream B: Mechanics and Materials 1

Session Chair: Prof. Adewumi Babafemi, University of Stellenbosch, South Africa

- 14:00-14:20** Effect of coarse aggregate type on the mechanical response of ultra-high performance concrete
S. Rybczyński, T. van der Horst, J. Lohmann, M. Ritter, F. Schmidt-Döhl
- 14:20-14:40** Development of a sustainable slag-modified limestone calcined clay (LC²) based one-part 3D-printed geopolymer concrete
M.O. Adeshokan, A.C. Sonde, H. Fataar, A.J. Babafemi

14:40-15:00 Assessing the curing, hydration and mechanical performance of lime mortars in heritage structures
N. Mdutywa, M. Loke, P. Kumar

15:00-15:20 Electrochemical corrosion behavior of zirconia at 25°C and 65°C in Ringer's solution and 3.5 wt% NaCl
W. Mtetwa, E. Munenge, L. Lebea, H.M. Ngwangwa, T. Pandelani

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Period 3: 15:30-16:30

Stream A: Mechanics 6

Session Chair: Dr. Dithoto Modungwa, Council for Scientific and Industrial Research (CSIR), South Africa

15:30-15:50 Compressive behavior and energy absorption of 3D-printed dual-material auxetic structures
M. Tjondrorahardja, Z. Kazanci

15:50-16:10 Process-induced defects, composition and compressive fracture behavior of bio-inspired 3D-printed Al₂O₃ dental implants
E. Munenge, W. Mtetwa, H.M. Ngwangwa, T. Pandelani, L. Lebea

16:10-16:30 Workability and compressive strength of solar waste glass mortar
T.R.P. Pasipamire, P. Naidoo, R. Combrinck, A.J. Babafemi

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Stream B: Mechanics and Materials 2

Session Chair: Dr. Sebastian Rybczynski, Hamburg University of Technology, Germany

15:30-15:50 Calibration and validation of finite element models for wood plastic composite panels using experimental data
B. Abdelshahid, P. Youssef, K. Nassar, M. Darwish, E.Y. Sayed-Ahmed

15:50-16:10 Investigating material properties of bio adhesive extracted from candelabra tree
A. Madiba, H.M. Ngwangwa, D.M. Madyira, R.T. Tebeta

16:10-16:30 Optimizing flange upstands for balanced inelastic performance in steel beam retrofitting using nonlinear finite element analysis
T. Tshireletso, C.M. Rathnayake, K.G. Abeysuriya

----- END OF PROGRAMME -----

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