WELCOME to the MECSOL 2024

The 9th International Symposium on Solid Mechanics - MECSOL is a biennial conference promoted by the Brazilian Society of Mechanical Sciences and Engineering – ABCM, and organized by its Committee of Solid Mechanics. The edition is being held in Florianópolis, Santa Catarina, Brazil, from October 21 to 23, 2024.

The goal of MECSOL 2024 is to be a platform to present and discuss the most recent problems and solutions in the industry and academy in solid mechanics. In this international platform, we are welcoming scientists, students and professionals working in the vanguard of the most challenging problems in these areas. Participants can take advantage of the productive discussion and collaboration opportunities in application, experimental, numerical and theoretical themes.

The topics of MECSOL 2024 include: Fatigue and Failure Analyses, Composite Materials and Structures, Elasticity, Plasticity, Damage and Fracture Mechanics, Viscoelasticity and Viscoplasticity, Impact Engineering, Structural Reliability Methods and Reliability-based Design Optimization, Optimization of Materials, Fluids and Structures, numerical methods, Nonlinear Analyses, High-performance Computing applied to Solid Mechanics and AI- and Neural Network -supported applications.

This edition of MECSOL involves cooperation between the three following Committees of ABCM: Solid Mechanics, Smart Materials and Structures, and Fracture Mechanics, Fatigue and Structural Integrity. MECSOL 2024 will be a great opportunity for researchers from these communities to share their findings.

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PROGRAM OVERVIEW

time	October 21st			October 22nd			October 23rd			time
7:30	Registration									7:30
8:00				Registration			Registration			8:00
8:30	Opening Ceremony									8:30
9:00	Plenary 1 **Gerhard Holzapfel**			Plenary 3 **André T. Beck**			Plenary 5 **Reinaldo Rodríguez-Ramos**			**9:00**
9:50	Coffee break			Coffee break / **Posters** – section 1			Coffee break			**9:50**
	S1 Elast. 1	S2 Stat/Dyn.1	S3 Fatigue 1	S7 Elast. 3	S8 Optim. 1	S9 Comp. 1	S13 Const Visc/Const 2	S14 Num.Met. 2	S15 Wave/Dyn.2	
10:20	0212	0010	0094	0158	0015	0069	0198	0011	0053	**10:20**
10:40	0022	0031	0109	0181	0017	0142	0052	0037	0084	**10:40**
11:00	0061	0036	0123	0183	0025	0153	0099	0049	0215	**11:00**
11:20	0093	0077	0172	0204	0032	0166	0177	0063	0233	**11:20**
11:40	0103	0088	0205	0151	0035	0175	0246	0076	0071	**11:40**
12:00	Lunch			Lunch			Lunch			**12:00**
							S16 & S19 Comp. 2&3	S17 & S20 Optim. 2&3	S18 & S21 Reliab/Fail.1&2	
13:40	Plenary 2 **Marcel Bos**			Plenary 4 **Alfredo E. Huespe**			0196	0073	0007	**13:30**
	S4 Elast. 2	S5 Stat/Dyn. 2	S6 Impact 1	S10 Visc/Const 1	S11 Num.Met. 1	S12 Stat/Dyn. 3	0199	0074	0008	**13:50**
							0200	0081	0045	**14:10**
14:30	0111	0112	0019	0026	0107	0134	0239	0091	0080	**14:30**
14:50	0113	0117	0057	0101	0096	0178	0240	0135	0083	**14:50**
15:10	0121	0119	0191	0170	0197	0207	Coffee break			**15:10**
15:30	0140	0120	0244	0152	0220	0221	0243	0150	0171	**15:30**
15:50	0156	0132	0067	0180	0067	0242	0206	0098	0217	**15:50**
16:10	Coffee break			Coffee break		Poster Section 2	0028	0147	0224	**16:10**
16:30	Round Table			ABCM Meeting 16:40			0018	0218	0115	**16:30**
							Closing Ceremony			**16:50**

DETAILED PROGRAM

MONDAY MORNING

9:00 – 9:50 KEYNOTE 1: **Gerhard Holzapfel** - *Graz University of Technology (TUG)* . (Room I, Chair: Eduardo A Fancello)

Topic: Modeling fiber-reinforced biosolids with application to artery walls in health and disease

Section S1 – Room 1 – (Elast.1) (Chair: Prof. Marcelo Savi)

Elasticity, Plasticity, Damage and Fracture Mechanics: Models, Experiments and Applications

10:20 (0212)	Limit states for materials with density variation	Jose Luis Silveira
10:40 (0022)	Plane stress adaptation of a non-associative elastoplastic model considering volume change in the plastic phase and finite element implementation.	Tiago Morkis Siqueira
11:00 (0061)	Seismic fragility analysis of asymmetric reinforced concrete structures using the lumped damage model.	Rodrigo Carvalho
11:20 (0093)	Numerical modeling of the mechanical strength of 3D-printed sand molds.	Eduardo Gabriel Jung
11:40 (0103)	On a constrained minimization theory to prevent material overlapping in nonlinear elasticity.	Adair Aguiar

Section S2 – Room 2 – (Static. /Dynam. 1) (Chair: Prof. Arcanjo Lenzi / Dr. Olavo M. Silva)

Structural Statics and Dynamics

10:20 (0010)	Heaviside Series: a new semi-analytical method for efficiently solving systems of linear second order ordinary differential equations	Matheus Janczkowski Fogaça
10:40 (0031)	Design and structural analysis of a radially split casing for a test centrifugal compressor operating with supercritical CO2	Diego Zilli Lima
11:00 (0036)	Dynamic simulations and vibration measurements of the gantry rotor of a photon counting computed tomography	Alexandre Schalch Mendes
11:20 (0077)	On the replacement of steel by nitinol as sealing gaskets for high pressure pipes	Victor Gomes Bittencourt
11:40 (0088)	Mechanical energy multi-harvesting: on the performance enhancement of mechanical energy harvesters	Luã Guedes Costa

Section S3 – Room 3 – (Fatigue 1) (Chair: Prof. Fabio Comes de Castro)

Fatigue and Failure Analyses

10:20 (0094)	Analysis of extrapolation methods for calculating hot spot stresses in welded joints.	Vinicius de Faria
10:40 (0109)	Residual stress influence on the fatigue life of yielded mechanical parts	Paulo Pedro Kenedi
11:00 (0123)	A comparative study of fatigue life estimation procedures for welded tubular joints across international codes	Henrick Moura Emerick
11:20 (0172)	Procedure for estimating fatigue life induced by vibration in small diameter branches from measured vibration spectra	Jonas Bernardi
11:40 (0205)	Application of a Degradation Tensor Phase-field Model to Reinforced Concrete Beams	Marco Lucio Bittencourt

MONDAY AFTERNOON

13:40 – 14:30 KEYNOTE 2: **Marcel Bos -** Royal Netherlands Aerospace Centre. (Room I, Chair: Carlos Chaves)

Topic: Development of a physics-based variable amplitude fatigue crack growth model that eliminates the need for rainflow counting and which, therefore, is highly suitable for application in digital twins of high-value platforms such as aircraft and ships

Section S4 – Room 1 – (Elast. 2) (Chair: Prof. Miguel Vaz)

Elasticity, Plasticity, Damage and Fracture Mechanics: Models, Experiments and Applications

14:30 (0111)	Analysis of lateral resistance of buried pipes by limit analysis considering dead-loads	Fabio da Costa Figueiredo
14:50 (0113)	Verification of a material model and estimation of the friction coefficient on the contouring of Ti rods	Arthur Sanchez de Almeida
15:10 (0121)	Diminishing residual stresses by applying a proper curvature sequence	Paulo Pedro Kenedi
15:30 (0140)	Use of phenomenological models to determine sensitivity to friction	Eduardo Rech
15:50 (0156)	A physically-based predictive model for hydrogen-assisted cracking: an integrated approach with FEniCS	Arthur Prates Santos Baptista

Section S5 – Room 2 – (Static. /Dynam. 2) (Chair: Prof. Rogério Marczak)

Structural Statics and Dynamics

14:30 (0112)	A Rate-Dependent Description of Martensitic Phase Transformation of Shape Memory Alloys	Marcelo Savi
14:50 (0117)	Transient response of bar structures interacting with layered soil profiles	Lucas Agatti Pacheco
15:10 (0119)	Numerical models of deepwater steel catenary riser and steel lazy wave riser	Igor Fortuna
15:30 (0120)	Dynamics of a rotor-frame-soil system: transient response by iterative coupling	Amauri Coelho Ferraz
15:50 (0132)	Numerical modeling of a cable-stayed structure - Comparison of approaches for structural assessment	Danilo de Santana Nunes

Section S6 – Room 3 – (Impact 1) (Chair: Marcilio Alves)

Impact Engineering

14:30 (0019)	Analysis of a Frontal Collision of a Light Rail Vehicle - LRV against a Deformable Obstacle in accordance with Scenario 3 of DIN EN15227 Standard	Bruno Gabriel Menino
14:50 (0057)	A proposal to improve the safety of small urban vehicles.	Márcio Schneider de Castro
15:10 (0191)	Response of a virtual catamaran model subjected to underwater explosion	César Augusto Bernardi Werle
15:30 (0244)	Low-velocity Impact on CFRP/Nomex Sandwich Panels	Pouria Bahrami Ataabadi
15:50 (0067)	Multiscale modeling of solid media featuring random distribution of voids	Pablo Blanco

MONDAY EVENING

16:30 – 18:00 **ROUNDTABLE** – Room 1

Theme: Teaching Solid Mechanics in Graduate Courses: Core Concepts vs. Real-world Applications

Moderator: Marcílio Alves

Context: It is observed that in most undergraduate engineering programs, the curriculum structure consists of two well-defined groups: one focused on fundamental knowledge, such as mathematics, physics, calculus, statics, solid mechanics, among others, and the other on applied content and activities.

Traditionally, fundamental knowledge is introduced through initial courses so that these concepts can later be applied to real-world problems. However, in recent years, partly due to the increase in foundational knowledge, educational institutions have reversed this logic, promoting structures in which students are challenged with real, everyday problems, and, from these, they seek the necessary fundamentals to solve them.

Questions to the Panelists: Panelists are requested to take 5 to 6 minutes (total) to discuss the following topics:

1. What is the structure of education in the area of Solid Mechanics used in the undergraduate program at the institution (or the country) where you work? (Information about courses, prerequisites, the order of presenting fundamental and applied content, internships in companies, laboratory research activities, etc., is welcome. Slides may be used to support the presentation)
2. What is your personal view/experience regarding these two approaches?

Discussion Dynamics: All panelists will make a brief presentation on the above topics, using 5-6 minutes each. After this stage, the floor will be open for questions and debates between the panel members and the audience. The estimated total time for the activity is 1 hour and 30 minutes.

18:15 **Cocktail Reception** – Hall of the Convention Center UFSC

TUESDAY MORNING

9:00 – 9:50 KEYNOTE 3: **André Beck** - São Carlos School of Engineering - USP. (Room 1, Chair: Paulo de Tarso R Mendonça

Topic: Optimal redundancy of structural systems under low probability high consequence events

9:50 – 10:20 **POSTER SECTION 1** (Hall of the Convention Center UFSC)

0044	An analytical solution for the first passage problem as a function of the process irregularity factor	Edison da Rosa
0051	Thermostructural Analysis of a Steel Truss Subjected to Fire	Ana Claudia dal Prá Vasata
0055	Bidirectional evolutionary stress-based topology optimization considering static failure theories	joão gonçalves lima neto
0066	Improving Mechanical Properties of Auxetic Materials through Modified Re-entrant Cellular Structures: Experimental and Numerical Analysis	Almir Silva Neto
0081	Topology multimaterial optimization in thermal problem with alternative phase algorithm and heaviside threshold funcion filter	Herbert Gomes
0100	A prototype numerical model to detect damage in frame structures using the finite element method and artificial neural networks	Halyson da Costa Silva

0102	Numerical implementation of a phase-field model applied to stress corrosion cracking with open-source tools	Paula Souza
0124	Assessing Fatigue Life Estimates: A Comparative Study of Spectral Frequency Domain Versus Rainflow in the time domain	Fabrina Maria Soares Tiburcio
0129	Prediction of structural responses to earthquake events using machine learning techniques	Isabelly Oliveira Nalesso
0167	Analysis by Newmark's Numerical Method with Experimental Comparison of Vehicle Dynamics	Tarik Aziz Saded Din de Souza
0182	Effect of phase distribution of a random signal on fatigue damage	Edison da Rosa
0184	Evaluate the influence of wind on the structural stability of the metal roofing of a building in the city of Jequié.	Barbara guimarães
0202	The Quasi Plane Strain state of stress. Definition and consequences.	Jonas Bernardi
0205	Application of a Degradation Tensor Phase-field Model to Reinforced Concrete Beams	Marco Bittencourt
0229	Analytical and numerical study of composite material with circular holes	Antonio Faria Neto
0245	Finite element analysis of the sound absorption coefficient of flexible origami-based acoustic panels with constant complex impedance	Jose Fernando Portilla Rosero

Section S7 – Room 1 – (Elast.3) (Chair: Prof. Miguel Vaz)

Elasticity, Plasticity, Damage and Fracture Mechanics: Models, Experiments and Applications

10:20 (0158)	Crack growth analysis in a cylindrical tubular geometry containing mixtures of natural gas and H2 using the phase-field method	Luis Felipe Souza Braga Carreira
10:40 (0181)	Elastic effects on metal hydride phase transition kinetics: a continuum theory	Natanaele Soares Medeiros
11:00 (0183)	Analysis of the influence of rolling direction on fracture toughness of the steel grade ASTM A285C applied in a kraft pulp process continuous digester	Alexandre Nakayama
11:20 (0204)	Fluid flow through pipes filled with polymer gels: The role of elasticity	Antônio da Cruz
11:40 (0151)	Analysis of stress concentration in pseudoelastic plates using digital image correlation (DIC) and finite element method.	Bruno Felippe Silva

Section S8 – Room 2 – (Optimiz. 1) (Chair: Prof. Helio Emmendoerfer Jr)

Optimization of Materials, Fluids and Structures

10:20 (0015)	Topology optimization of two-dimensional fiber-reinforced structures considering geometric nonlinearity	Gabriel Queiroz
10:40 (0017)	Parametric and shape optimization of plane truss structures by heuristic algorithms and the positional FEM	Gabriel Queiroz
11:00 (0025)	Integrating Penalty Methods with Dung Beetle Optimizer for Structural Optimization	Paulo de Souza Silva
11:20 (0032)	Noise Handling in Kriging-Based Optimization Algorithms Applied to Sequential Decision Problems in Infrastructure Planning	Cibelle Dias de Carvalho Dantas Maia
11:40 (0035)	Minimization of Structural Dynamic Compliance in 3D Multicomponent Systems: A Topological Optimization Approach	Rafael Ferro

Section S9 – Room 3 – (Compos. 1) (Chair: Prof. Rogério Marczak)

Composite Materials and Structures

10:20 (0069)	Analysis of flamability and mechanical properties of polyester tiles reinforced with fiberglass additive with alumine trihydrate	Diego Alves de Miranda
10:40 (0142)	Analysis of FGM plates in cylindrical bending using simple semi-analytical solutions	Paulo de Tarso R Mendonça
11:00 (0153)	On the influence of transverse normal and shear stresses on fatigue life predictions for laminated composites	Jorge Alberto Rodriguez Duran
11:20 (0166)	Computational analysis of variable-angle tow filament-wound composite cylinders: Macromechanical modeling considering winding pattern	Volnei Tita
11:40 (0175)	Reinforcing metal structures with carbon fiber/epoxy: economic viability vs. load capactity gain	Bárbara Minosso

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TUESDAY AFTERNOON

13:40 – 14:30 KEYNOTE 4: **Alfredo Edmundo Huespe** CIMEC (CONICET-Univ.Nac.Litoral) Argentina

(Room 1, Chair: Lavinia M.S.A. Borges, UFRJ)

Topic: Spinodal decomposition in mechanical metamaterials and systems with coupled chemo-Mechanical interactions

Section S10 – Room 1 – (Visco. / constit. 1) (Chair: Prof. Marco L.Bitencourt)

Viscoelasticity and Viscoplasticity: Models, Experiments and Applications / Constitutive models

14:30 (0026)	About RVE size objectivity of multiscale analysis of porous media.	Javier Mroginski
14:50 (0101)	Preisach model to describe the hysteretic temperature-dependent behavior of shape memory alloys.	Sergio Oliveira
15:10 (0170)	Second-order computational homogenization scheme for large deformation poromechanics	José Luís Medeiros Thiesen
15:30 (0152)	Predictive modeling of heterogeneous materials using homogenization and morphology-based methods.	Lívia Nogueira
15:50 (0180)	Analyzing flexural strength in fiber-reinforced laminated composite structures with progressive failure assessment.	Ricardo de Medeiros

Section S11– Room 2 – (Num.Met. 1) (Chair: Prof. Eduardo Lenz Cardoso)

Numerical Methods: FEM, XFEM, GFEM, BEM and other methods

14:30 (0107)	Fixed grid structure for Retaining "Matacos" blocks in Iron Ore Primary Crushing Installations Using MED and MEF: Case Study in the Carajás Mineral	José Cléber Rodrigues da Silva
14:50 (0096)	Investigation of PSO strategies applied to aeroelastic optimization of composite wings with variable stiffness laminates	Carlos Eduardo de Souza
15:10 (0197)	Comparison Between Numerical, Analytical and Experimental Methods in Bolts and Nuts Threads Stress Analysis	Juan Carlos Romero Albino
15:30 (0220)	An implementation of a finite difference scheme for heat transfer analyses in parametrized I-shaped beams' cross-sections	Luana Crozatti Rocha
15:50 (0067)	Multiscale modeling of solid media featuring random distribution of voids	Pablo Blanco

Section S12 – Room 3 – (Static. /Dynam. 3) (Chair: Prof. Humberto Coda)

Structural Statics and Dynamics

14:30 (0134)	Numerical analysis of multi-cable mooring system coupled with a floating structure	Gabriel Garden
14:50 (0178)	Experimental results on the damping ratio in sample of a real umbilical	Luiz Guilherme de Oliveira Appel
15:10 (0207)	Nonlinear dynamics of spatial structures – Actuated mechanisms and origami	Humberto Coda
15:30 (0221)	Numerical Comparison of Kinetic Energy Harvesting between Simple and Double Pendula under Parametric Excitation	Alberto Paiva
15:50 (0242)	The Effect of Poisson's ratio and soil damping on the dynamic response of sandwich foundations using a coupled IBEM-FEM Model	Josue Labaki

TUESDAY EVENING

16:10 – 17:10 **POSTER SECTION 2** (Hall of the Convention Center UFSC)

See the list of manuscripts of Section 1.

16:30 – 18:00 ABCM MEETING – Room 1

Host: Paulo de Tarso R Mendonça

This is a regular meeting of the Brazilian Society of Mechanical Sciences and Engineering (ABCM), hosted by its Committee of Solid Mechanics. The committee will then update attendees on its activities and work through other items on the agenda, including announcement of the host for MECSOL 2026.

Everyone is welcome!

19:00 **CONFERENCE BANQUET**

This is the main social event of the conference. **Transportation** will be provided for all attendees, leaving from the Conference Center, at UFSC, at 18:30 hours. Please make sure to be at the Conference Center before this time.

The **venue** for the Conference Banquet is: Majestic Palace Hotel, av. Rubens de Arruda Ramos, 2746 (known as avenida Beira Mar Norte).

Attendance for the registered conference participants is granted with the payment of a symbolic fee, detailed as follows:

- Categories: Professional and Professional – ABCM Member R$ 95,00
- Category: Students R$ 45,00

Payment is made by bank transfer PIX. The participant will receive by email a Google Forms link, where he/she will enter the data and the transfer record.

The **menu** we have selected is the following.

Cocktail table

- Noble Cheese and Cold Meat Table
- Cold cuts: Salami, ham and turkey breast.
- Noble cheeses: Gouda, Provolone, Parmesan, Brie, Gorgonzola and Colonial.
- Bread and Toast Table
- Dried Tomato and Shrimp P

Buffet

- Mustard and Pesto Sauce
- Green Leaves with Walnuts and Gorgonzola with Red Fruit Coulis
- Caprese Salad with Basil Leaves
- Japanese Cucumber Salad with Fruit & Kani Kama
- Waldorf Salad

Main course

- Entrecote in Green Pepper Sauce & Dijon Mustard

- Sea Bream Fillet with Mango Vinaigrette and Plantain Puree

- Cassava "Escondidinho" with Dried Meat

- Rice with Cashew Nuts

- Shrimp Risotto

- Gnocchi with Mushroom Sauce

Desserts

- Coconut Manjar with Plum Syrup
- Passion Fruit Tart
- Chocolate Mousse Tart
- Laminated Fruit

Soft drinks and beer

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WEDNESDAY MORNING

9:00 – 9:50 KEYNOTE 3: **Reinaldo Rodriguez Ramos –** Facultad de Matematica y Computación, Universidad de La Habana, Cuba & UFF. Room 1, Chair: Volnei Tita)

Topic: Prediction of properties in fiber-reinforced composites using multiscale homogenization method

Section S13 – Room 1 – (Visco. / constit. 2) (Chair: Jakson Manfredini)

Viscoelasticity and Viscoplasticity: Models, Experiments and Applications / Constitutive models

10:20 (0198)	An Eshelbian micromechanics approach to non-saturated porous media	Javier Mroginski
10:40 (0052)	Study to characterize PA6 through stress relaxation testing varying temperature and water absorption	Jakson Vassoler
11:00 (0099)	Mechanical characterization of pmma acrylic bone cements with a nonlinear viscoelastic model	Mário Vargas Ceron
11:20 (0177)	Viscoelastoplastic approaches to model nonlinear polymeric materials	Andre Kuhl
11:40 (0246)	Experimental and numerical study to better understand the deformation behavior and contact mechanisms of Gecko-inspired adhesive grippers	Eric Euchler

Section S14 – Room 2 – (Numer. Meth. 2) (Chair: Prof Pablo Blanco)

Numerical Methods: FEM, XFEM, GFEM, BEM and other methods

10:20 (0011)	Modal analysis of periodic truss structures using the extended multiscale	Debora Cristina Brandt
10:40 (0037)	Finite element modeling of the friction stir welding process	Gabriel Aguirre
11:00 (0049)	Numerical constitutive responses of geomaterials sample using discrete elements	Luiz Sanches
11:20 (0063)	FEM-based inverse analysis for bushings static stiffness correlation	Luiz Felipe S.Simioni
11:40 (0076)	Efficient frequency response analysis of Mindlin plates using the spectral element method	Jose Maria Campos dos Santos

Section S15 – Room 3 – (Wave /Dynam. 2) (Chair: Prof. Josue Labaki)

Wave Propagation / Structural Statics and Dynamics

10:20 (0053)	Building upon Rayleigh's research on the propagation of waves on a string endowed with periodically attached masses	Carolyne Valentin
10:40 (0084)	Topological interface states in interconnected piezoelectric metamaterials	Luis Alfredo Pérez Martínez
11:00 (0215)	Acoustic and electromagnetic imaging of hidden structures from multi-static data	Wagner B Muniz
11:20 (0233)	Band structures and forced response analysis of phononic crystals utilizing quasi-sierpinski fractals with geometric defects	Victor Gustavo Ramos Costa dos Santos
11:40 (0071)	Evaluation of a control system on the dynamic behavior of off-road vehicle suspension using a quarter car model.	Laura Lavinnya Lago de Almeida

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MECSOL 2024 FLORIANÓPOLIS

WEDNESDAY AFTERNOON

Section S16 – Room 1 – (Compos. 2) (Chair: Prof. Volnei Tita)

Composite Materials and Structures

13:30 (0196)	Prediction of effective properties of a heterogeneous cylinder with an elliptical cross-section	Reinaldo Rodríguez
13:50 (0199)	Optimization of fiber paths embedded in elastomeric matrices	Rogério Marczak
14:10 (0200)	Experimental characterization of fiber reinforced elastomers	Rogério Marczak
14:30 (0239)	Computational homogenization for the estimation of overall properties in linear viscoelastic composites	Panters Rodríguez Bermúdez
14:50 (0240)	Influence of the initial time on the effectiveness of composite repair systems for metallic pipes with through-thickness damage	Bernardo Santiago Areias

Section S17 – Room 2 – (Optimiz. 2) (Chair: Prof. Eduardo Lenz Cardoso)

Optimization of Materials, Fluids and Structures

13:30 (0073)	Topology optimization of structures subjected to design-dependent pressure loads and self-weight using the TOBS-GT Method	Lucas Oliveira Siqueira
13:50 (0074)	Bimaterial topology optimization with local stress constraints via a level set approach	Helio Emmendoerfer Jr
14:10 (0081)	Topology multimaterial optimization in thermal problem with alternative phase algorithm and Heaviside threshold function filter	Herbert Gomes
14:30 (0091)	Stress minimization subject to the combination of surface and self-weight loads: material interpolation model analysis	Gisele Garcez
14:50 (0135)	Evaluation of 3D auxhex structure by finite element analysis	Eduardo Silva

Section S18 – Room 3 – (Reliab. 1) (Chair: Prof. André T. Beck)

Structural Reliability Methods and Reliability-Based Design Optimization

13:30 (0007)	Drive-by damage detection on railway bridges using deep sparse autoencoders	Leonardo Minski
13:50 (0008)	Uncertainty quantification in buriti laminate composite plate bending problems	Roberto Mauro Felix Squarcio
14:10 (0045)	Structural reliability assessment of an existing guyed transmission tower through an active learning deep gaussian process regression	Gabriel Padilha Alves
14:30 (0080)	surrogate models with infill samples applied to the reliability of composite materials	Tomás Santana
14:50 (0083)	Study of the behavior of a steel building under the effect of progressive collapse	Junior Fernando Pires

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WEDNESDAY EVENING

Section S19 – Room 1 – (Compos. /Nonlinear 3) (Chair: Prof. Volnei Tita)

Composite Materials and Structures / Nonlinear Analyses: Buckling, Post-Buckling and Contact Analyses

15:30 (0243)	Examining airless tire spoke concepts	Tales de Vargas Lisbôa
15:50 (0206)	EVALUATION OF STRUCTURAL HEALTH MONITORING IN COMPOSITE MATERIAL: EXPLORING THE USAGE OF A NEW KIND OF SENSOR	Mateus Carpena Neto
16:10 (0028)	A Study Comparing Simultaneous and Sequential Approaches for VSCs Plates Compliance Optimization.	Rogério Marczak
16:30 (0018)	Nonlinear finite element formulation for unbonded prestressed concrete beam with tendon sliding contact discretization and anchorage modelling	Tiago Morkis Siqueira

Section S20 – Room 2 – (Optimiz. 3) (Chair: Prof. Daniel Milbrath De Leon)

Optimization of Materials, Fluids and Structures

15:30 (0150)	Topology optimization applied to the simulation and design of casting components	Pablo Bagatini
15:50 (0098)	Numerical accuracy of meshless commercial software for nonlinear applications	Juan Carlos Romero Albino
16:10 (0147)	Efficiency analysis in energy conversion using piezoelectric materials with different positions in acoustic black holes	Tatiane Weimann
16:30 (0218)	The assessment of extreme stresses values by the coupling of optimization algorithms and the Boundary Element Method	Mário César Filho

Section S21 – Room 3 – (Reliab. /Failure /Dynam. 2) (Chair: Prof. André T. Beck)

Structural Reliability Methods and Reliability-Based Design Optimization / Failure Criteria / Structural Statics and Dynamics

15:30 (0171)	Failure probability minimization of structures under seismic excitations with passive viscous dampers	Giancarlo Mantovani
15:50 (0217)	The application of reliability and optimization approaches to design codes of tensioned steel structures	Mário César Filho
16:10 (0224)	Convolutional neural network for highway bridge indirect structural health monitoring	Pedro Gasparotti
16:30 (0115)	Effective strength of ductile porous materials with transversely isotropic matrix and cylindrical voids	Tiago dos Santos

Closing Ceremony Room 1 – 16:50 h

During the Closing Cerimony, it will also be announced the **Award for the best student paper**.

LUNCH OPTIONS

When picking a place to have lunch, please keep in mind that our lunch break is only 1 hour and 30 minutes long. We suggest choosing buffet style (self-service) lunch, instead of *à la carte* service. Here are some suggestions of buffet restaurants around the Campus. Thes are all within a 10 minutes walk from the Convention Center.

- La Bohème Restaurante. Rua Lauro Linhares, 1903 – Trindade. Phone: +55 48 3028-7647.
- Restaurante e churrascaria tradição. R. João Pio Duarte Silva, 277 - Córrego Grande. Phone: +55 48 3233-2525. Closed on Mondays.
- Restaurante da Família. Rua João Pio Duarte Silva, 332 - Córrego Grande. Phone: +55 48 3335-0405. Only lunch.
- Novo Oriente. Chinese food. Trindade Shopping. Rua Lauro Linhares, 2123 - Loja 59 - Trindade, Phone: +55 48 998293858.
- Restaurante Rocco. Trindade Shopping. Rua Lauro Linhares, 2123 - Loja 59 - Trindade, Phone: +55 48 3024-8859.
- Napoli Pizzeria. Rua Deputado Antônio Edu Vieira, 1940 – Pantanal. Phone: +55 48 3238-4852.
- Vila Romana Shopping Center. There is a large variety of restaurants. It is located 1 km from the Convention Center.

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