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## 1. Keynote lectures

**Insights and advances in the analysis of structures**

K.J. Bathe

Recent studies on long-span bridges: Vibration control, seismic retrofit and monitoring in Japan

Y. Fujino & D.M. Siringoringo

Local-distortional interaction in cold-formed steel columns: Non-linear behaviour, ultimate strength and DSM design

D. Camotim, P.B. Dinis, B. Young & N. Silvestre

Simulation of multi-physical processes in solar updraft power generation

WB. Krätzig

Mechanics of interfaces and evolving discontinuities

R. de Borst, J.LC. Remmers, C.V. Verhoosel & A. Needleman

Recent controversies and new challenges in structural topology optimization

G.L.N. Rozvany

## 2. Dynamic response, vibration analysis, vibration control

General conditions for instantaneous system inversion in structural dynamics

K. Maes, E. Lourens, G. De Roeck & G. Lombaert

Determination of aerodynamic damping of twin cables in wet conditions through passive-dynamic wind tunnel tests

M.B. Elielsen, E. Mattiello & C.T. Georgakis

Frequency domain stochastic response of structural systems with uncertain parameters: Closed-form sensitivity

G. Masciullo, R. Santoro & A. Sofi

Semi-active control of structural systems with uncertainties using an unscented Kalman filter

M.S. Mish, E.N. Chatzi & F. Weber

Guided waves for stress identification

A. Pau, G. Ruta & F. Vestrioni

Unscented Kalman Filter for the identification of passive control devices

M.C. Cervolo, A. De Stefano, E. Matta, A. Quatrone & L. Zanotti Fragnara

Vibration elimination analysis of simply-supported bridge under moving loads based on Laplace-Carson integral transform

K. Wang, H. Xua & W. Guo

Dynamic identification of Palazzo Marchesale in S. Giuliano di Puglia


A suspended mass damper for torsional and translational vibration control

M. Carlisle & K. Li
Status quo and critical review of PPV safe limits for subsurface construction blasting close to low-rise buildings
E. Y. Sayed-Ahmed & K.K. Naji

Dynamic response of rigid pavement under moving traffic load with variable velocity
Y. Zhongi & M.J. Xu

Assessment of bridge behavior due to the passage of high speed trains
A. Graça, L. Guerreiro & F. Virtuoso

Dynamic response of airport building structure due to construction machinery effects
J. Benč & D. Papán

3. Vibration serviceability, human-induced vibrations, human-structure interaction

Data-driven model of random lateral pedestrian excitation
V. Racic, J.M.W. Brownjohn & A. Pavic

Simultaneous registration of walking behaviour and structural response
K. Van Nimmen, P. Van den Broeck, G. Lombaert & G. De Roeck

Vibrations in a multi-storey lightweight building structure: Influence of connections and nonstructural mass
L.V. Andersen & P.H. Kirkegaard

Direct velocity feedback versus a geometric controller design of remotely located vibration control systems
D.S. Nyawako, U. Ubaid, P. Reynolds & M.J. Hudson

Sensitivity analysis of coupled crowd-structure system dynamics to walking crowd properties
E. Shahabpoor, A. Pavic & V. Racic

Experimental study of the human ability to deliberately excite a flexible floor
C. Schwartz, A. Berger, O. Brüls, J.-L. Croisier, B. Forthomme & V. Denoël

4. Non-linear dynamics

Dynamics of structural components subjected to large rotations using a flexible multibody approach (Invited Paper)
J. Ambrósio & M.A. Neto

Nonlinear dynamics of a rotating SD oscillator
Q. Cao, N. Han & M. Wiercigroch

A hybrid time-frequency procedure for the solution of nonlinear dynamic problems
F.N. Correa & B.P. Jacob

Nonplanar vibration and dynamics instability of slender cruciform columns

Bifurcation analysis of a Jeffcott rotor with a bearing clearance: Numerics and experiments (Invited Paper)
J. Páez Chávez, M. Wiercigroch & S.V. Vaziri Hamaneh

A computational study of the upper Lyapunov exponent and the uniform persistence for monotone skew-product semiflows
J.A. Calzada & R. Ohaya

Vibrations of cables with bending stiffness by an asymptotic approach
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M.R. Jeffrey

On the dynamics of stacks of rigid blocks
F. Saïta, P. Clemenê & D. Rinaldis

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Seismic behaviour and
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M. Sarkesian, N. Mitkova

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Y. Fujino & D.M. Siri

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M. Andres, R. Woermann

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E.D. Booth

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S. Benfratello, L. Palacios

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T. Sheehan, T.M. Chang

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R. Zhang & L.O. Gary

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Seismic performance
Y. Fujino & D.M. Siri

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J.M. Dulinska & M. F. Sutcliffe

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Passive energy dissipative systems in steel and stainless steel
M. Ashraf & M.R. Hadi

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Y. Cui, S. Kishiki & S. Kase

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O. Prodan, I. Ladar & D. Lofdahl

Effect of basement rigidity
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Bidirectional pushover
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6. Material modelling, composite materials, functionally-graded materials

Some advances in functionally graded materials (Invited Paper)
L. Nunziante

Numerical implementation of the Hock-Brown material model with strain hardening
E.S. Sorensen, J. Clausen & L. Damkilde

Simulation of the mechanical behaviour of WCu composites containing FGM related interpenetrating microstructures under consideration of phase dependent damage limits
S. Schmauder & U. Weber

Determination of effective elastic constants of two phase composites
O. Bulat, N. Kadioglu, S. Ataoglu, M. Yuksek & E. Sancak

Strain induced product properties of magneto-electric composites

Microstructural image-based modelling of weld failure
O. Barrera, A.C.F. Cocks & E. Tarleton

Flame straightening application on structural steels: Effects on mechanical and fracture properties

Statistically similar RVE construction based on 3D dual-phase steel microstructures
L. Scheuermann, D. Balzani, D. Brands, J. Schröder & D. Raabe

A study of local mechanical properties of 304L SS welded joints subjected to cyclic straining using depth-sensing instrumented indentation
D. Ye, F. Mi & X. You

Biological tissue mechanics with fibres modelled as one-dimensional Cosserat continua: Applications to cardiac tissue in healthy and diseased states
K. Sniek, S. Skatulla & C. Sansour

Buckling analysis of thin composite plates reinforced by carbon nanotubes (CNTs) using finite strip methods (F.S.M)
M. Pazoki, M. Akbari & A. Heidarpour

Identification of nonlinear hyperelastic material parameters for healthy myocardial tissue via an inverse method based on modelling the passive filling stage of the cardiac cycle
M. Essack & S. Skatulla
7. Numerical modelling, FEM modelling

A layered shell element for the thermal analysis of plates exposed to non-uniform heating
A.E. Jeffers

Co-rotational FEM for fast geometrically nonlinear static and dynamic algorithms
D. Marinkovic & M.W. Zehn

Finite element modelling of shear tab connections including damage simulation
A. Mirzaei, C.A. Rogers & R. Tremblay

Nonlinear static and dynamic analysis of an electrically-actuated microbeam modelled by means of the strain gradient elasticity theory
P. Belardinelli & S. Lenci

Peak shear stress distribution in finite element models of concrete slabs
E.O.L. Lanssoght, C. van der Veen, J.C. Walraven & A. de Boer

Elimination of slip-locking in composite beam analysis by using a meshfree method
R.E. Erkmen

Nonlinear analysis of semi-rigid steel frames subjected to blast or fire
A. Heidarpour

Coupling different FE-models for the calculation of the thermo-mechanical behavior of ultra high performance concrete components under high temperature load
M. Siemen, D. Hosser & J. Zehfuß

FE modelling of semi-rigid flush end plate joints with concrete-filled steel tubular columns
A. Ataei & M.A. Bradford

Development and testing of a technique for the simulation of the rock cutting process

Material influence on the strength of aluminium column web in tension
G. Sarracco, G. Brando & G. De Matteis

8. Impact, blast, damage mechanics, damage modelling

Interaction forces between huge cargo vessels and quay walls
M. Bahr & V. Sigrist

Response of a building envelope system to near field blast events
H.D. Hidallana-Gamage, D.P. Thambiratnam & N.J. Perera

Impact velocity and initial length influence on the crushing behaviour of TWCF open section members under axial impact
M. Kotelko, R.J. Mania & M. Jankowski

Computational modelling of reinforced concrete wall subjected to transformer tank rupture
M.A. Seman, M.A. Nasly, Y.T. Feng & Z.M. Jufini

Blast test and numerical simulation of point-supported laminated glass curtain wall
S. Chen, C.G. Zhu, G.Q. Li & Y. Lu

Thermodynamics-based constitutive modeling of coupled dissipative phenomena in engineering materials
H. Egner, W. Egner & M. Rys

Heterogeneous structures studied by an interphase elasto-plastic damage model
G. Giambanco, G. Fileccia Scimeiti & A. Spada

A coupled local-nonlocal framework for modeling hydraulic fracturing in the Karoo
D.Z. Turner