The 6th International Conference on Thin Walled Structures

05 – 07 September 2011, Timisoara, Romania

www.ct.upt.ro/ictws2011.htm

FINAL PROGRAMME

Organised by,

The "Politehnica" University of Timisoara
Department of Steel Structures and Structural Mechanics

and

Romanian Academy – Timisoara Branch
Laboratory of Steel Structures

in co-operation with

European Convention For Constructional Steelwork

GENERAL PROGRAMME

Monday, 05.09.2011

08^{oo} – 09^{oo} Registration 09^{oo} – 09^{30} Opening Session	
09^{30} – 10^{30} *Keynote Session 1*	
10^{30} – 11^{oo} Coffee Break	
11^{oo} – 13^{oo} Parallel sessions	
Session 1.1: Buckling	Session 8.1: Shell and space structures
13^{oo} – 14^{30} Lunch	
14^{30} – 15^{30} *Keynote Session 2*	
15^{30} – 16^{30} Parallel sessions	
Session 7.1: Storage racking	Session 8.2: Shell and space structures
16^{30} – 17^{oo} Coffee Break	
17^{oo} – 18^{30} Parallel sessions	
Session 7.2: Storage racking	Session 4.1: Connections in thin-walled structures
20^{30} – 22^{30} Welcome Reception	

Tuesday, 06.09.2011

08^{oo} – 09^{oo} Registration		
08^{30} – 09^{30} Parallel sessions		
Session 5.1: Cold-formed steel structures	Session 4.2: Connections in thin-walled structures	
09^{30} – 10^{30} *Keynote Session 3*		
10^{30} – 11^{oo} Coffee Break		
11^{oo} – 13^{oo} Parallel sessions		
Session 5.2: Cold-formed steel structures	Session 1.2: Buckling	
13^{oo} – 14^{30} Lunch		
14^{30} – 16^{oo} *Keynote Session 4*		14^{30} – 18^{30} ECCS TWG8.4 Meeting on Shell Buckling
16^{oo} – 16^{30} Coffee Break		
16^{30} – 18^{30} Parallel sessions		
Session 3.1: Behaviour of thin-walled structures under extreme loadings	Session 2.1: Post-buckling analysis and failure modes	
20^{oo} – 23^{oo} Conference Banquet		

Wednesday, 07.09.2011

08^{30} – 10^{30} Parallel sessions		
Session 6.1: Composite structures	Session 8.3: Shell and space structures	Session 10: RFCS-Project 'SEMI-COMP+' Design proposal for the transition of cross-section and member resistances from class 2 to class 4
10^{30} – 11^{oo} Coffee Break		
11^{oo} – 12^{30} Parallel sessions		
Session 3.2: Behaviour of thin-walled structures under extreme loadings	Session 9: Plated structures	
12^{30} – 14^{00} Parallel sessions		
Session 6.2: Composite structures	Session 2.2: Post-buckling analysis and failure modes	
14^{00} – 14^{15} Closing session		
14^{15} – 15^{30} Lunch		

Thursday, 08.09.2011

08^{30} – 18^{oo} Excursion Tour

DETAILED PROGRAMME OF SESSIONS

Monday, 05.09.2011

$08^{oo} – 09^{oo}$ Registration

$09^{oo} – 09^{3o}$ Opening Session

Keynote Session 1
Chairmen: V. Gioncu

$09^{3o} – 10^{oo}$ *Ulrike Kuhlmann, Antonio Zizza, Benjamin Braun, Rolando Chacon, Balazs Kövesdi and Franc Sinur*: Safety and stability of slender plated elements – New chances and developments of Eurocode 3 Part 1.5

$10^{oo} – 10^{3o}$ *Benoit P. Gilbert and Kim J.R. Rasmussen*: Recent research on the design and behaviour of drive-in steel storage racking systems

$10^{3o} – 11^{oo}$ Coffee Break

$11^{oo} – 13^{oo}$ Parallel sessions

Session 1.1: Buckling
Chairmen: E. Batista & M. Kotelko

1. *Pedro Natário, Nuno Silvestre, Dinar Camotim:* Localized web buckling analysis of cold-formed steel beams using GBT
2. *Cilmar Basaglia, Dinar Camotim*: GBT-based buckling analysis of cold-formed steel trusses
3. *Michael J. Andreassen, Jeppe Jönsson:* Distortional eigenmodes and solutions for thin-walled beams
4. *Naoual Djafour, Mustapha Djafour, Abdellatif Megnounif, Mohamed Matallah, Djawed Zendagui:* A constrained finite strip method for prismatic members with branches and/or closed parts
5. *Ahmed Godat, Frederic Legeron, Dieudonné Bazonga:* Local buckling behavior of thin-walled tubular polygon columns under axial compression
6. *Zhanjie Li, Attila L. Joó, Sándor Ádány and Benjamin W. Schafer:* Modal identification for finite element models of thin-walled members
7. *Kunihiro Takahashi, Mayuo Kinoshita, Kazuki Akabane*: Balance equations for torsional-flexural buckling of thin-walled columns based on multi-scale continuum mechanics
8. *Gábor Schnierer, Attila L. Joó, Nuno Silvestre*: Generalized beam theory based modal response spectrum analysis

Session 8.1: Shell and space structures
Chairmen: A. Sadowski & F. Guarracino

1. *Cornelia Doerich-Stavridis, J. Michael Rotter*: Estimating the plastic collapse load of a shell using LA, MNA and GMNA finite element analyses
2. *André Da Silva, Ali Limam, Fabien Lorioux, Serge Radulovic, Vincent Taponier*: Buckling of pressurized cylindrical shells under axial compression or bending load
3. *Lei Chen, J. Michael Rotter, Cornelia Doerich-Stavridis*: Buckling behaviour of cylindrical shells of stepwise wall thickness under uniform external pressure
4. *Patricia Pappa, Spyros A. Karamanos:* Non-associative constitutive model and numerical implementation for buckling calculations in cylindrical steel shells
5. *Andrea Spagnoli, Lorenzo Montanari*: Simultaneous modes in the buckling of axially compressed cones
6. *Adam J. Sadowski, J. Michael Rotter:* Different computational analyses and the behaviour of thin-walled cylindrical shells under unsymmetrical strip loads
7. *Paweł J. Błażejewski, Jakub Marcinowski:* Consequences of eccentric discharge of a steel silo designed only for centric discharge
8. *Cem Topkaya, J. Michael Rotter:* Stiffness of silo supporting ring beams resting on discrete supports

$13^{oo} – 14^{3o}$ Lunch

Keynote Session 2
Chairmen: D. Camotim

$14^{3o} – 15^{oo}$ *Federico M. Mazzolani*: 3D aluminium structures

$15^{oo} – 15^{3o}$ *J. Michael Rotter*: Challenges in the generalisation of structural buckling assessments to all structures and load cases

15^{3o} – 16^{3o} Parallel sessions

Session 7.1: Storage racking Chairmen: F. Roure	Session 8.2: Shell and space structures Chairmen: S. Karamanos
1. *Hervé Degée*: New European Recommendations for the design of static steel pallet racks in seismic conditions – The FEM 10.2.08 Code of Practice 2. *Vinh Hua, Kim J.R. Rasmussen*: Friction coefficient and in-plane shear stiffness of steel storage rack timber pallets 3. *Benoit P. Gilbert, Kim J.R. Rasmussen:* Determining the transverse shear stiffness of steel storage rack upright frames 4. *Kamal M. Bajoria, Keshav K. Sangle*: Finite Element buckling analysis of 3-D conventional pallet and drive-in cold-formed storage rack structures with semi-rigid connections	1. *Mihai Nedelcu, Cosmin G. Chiorean*: GBT formulation to analyse the stability of isotropic conical shells 2. *Takaya Kobayashi, Yasuko Mihara, Fumio Fujii*: Path-tracing analysis for post-buckling process of elastic cylindrical shells under axial compression 3. *F. Guarracino, A.C. Walker* A simplified analytical approach to liner wrinkling of CRA lined pipes 4. *Annemiek Hilberink, Nol Gresnigt, Bert Sluys*: A finite element method approach to liner wrinkling of lined pipe

16^{3o} – 17^{oo} Coffee Break

17^{oo} – 18^{3o} Parallel sessions

Session 7.2: Storage racking Chairmen: H. Degee & M. Casafont	Session 4.1: Connections in thin-walled structures Chairmen: P. Mäkeläinen & L.-W. Tong
1. *Miquel Casafont, Francisco Caparrós, Magdalena Pastor, Francesc Roure, Jordi Bonada*: Linear buckling analysis of perforated steel storage rack columns with the finite strip method 2. *Magdalena Pastor, Francesc Roure, Miquel Casafont, Jordi Bonada, Joan Noguera:* Longitudinal strain distributions in rack uprights. Equivalent thickness 3. *Paolo Armani, Nadia Baldassino, Riccardo Zandonini*: Study of the response of uprights of pallet racks under compression 4. *Andrei Crisan, Viorel Ungureanu, Dan Dubina*: Behaviour of cold-formed perforated sections in compression. Part 1 – Experimental investigations 5. *Andrei Crisan, Viorel Ungureanu, Dan Dubina*: Behaviour of cold-formed perforated sections in compression. Part 2 – Numerical investigations 6. *Zhenyu Yao, Kim J. R. Rasmussen*: The inelastic behavior of perforated plates under axial compression	1. *Luigi Fiorino, Ornella Iuorio, Vincenzo Macillo, Raffaele Landolfo*: Evaluation of shear and tension strength of self-drilling screws by experimental test 2. *Thomas Misiek, Saskia Käpplein*: Pull-through resistance of tensile-loaded screw-fastenings of thin-walled sheeting and sandwich panels 3. *Lingli Pan, Yiyi Chen*: Study on the behavior of panel zone with vertical stiffener in steel moment resistant frames 4. *Wei Lu, Pentti Mäkeläinen, Jyri Outinen, Zhongcheng Ma*: Design of screwed connections in cold-formed steel sheeting in fire 5. *Zhongcheng Ma, Wei Lu, Pentti Mäkeläinen, Jyri Outinen*: Behaviour of shot nailed connection in cold-formed steel sheeting at elevated temperature 6. *Ran Feng, Ben Young*: Numerical investigation of cold−formed stainless steel tubular X−joints at elevated temperatures

20^{3o} – 22^{3o} Welcome Reception

Tuesday, 06.09.2011

$08^{oo} – 09^{oo}$ Registration

$08^{3o} – 09^{3o}$ Parallel sessions

Session 5.1: Cold-formed steel structures Chairmen: N. Silvestre	Session 4.2: Connections in thin-walled structures Chairmen: B. Young
1. *Yuner Huang, Ben Young*: Pin-ended column tests of cold-formed lean duplex stainless steel 2. *Gábor Jakab, László Dunai*: Thin-walled C-section members in eccentric compression 3. *Jung Kwan Seo, Mahen Mahendran*: Design of Litesteel beam floor joists with web openings using an equivalent web thickness method 4. *Ádám Zsarnóczay, László G. Vigh*: Static behaviour of an innovative mounting solution for supporting structures on soft covered flat roofs	1. *Lincy Pyl, Luc Schueremans, Willem Dierckx, Iveta Georgieva*: Numerical and experimental modeling of the joints in 3D frame structures made of cold-formed thin gauge members 2. *Filipe Santos, Luis Simões da Silva*: Connections of cold formed profiles in industrial buildings 3. *Paul Pernes, Zsolt Nagy*: Calibration of a finite element model for evaluation of cold-formed steel bolted joints in pitch-roof portal frames 4. *Szymon Swierczyna, Walter Wuwer:* Journal friction in bolted lap joints in a complex state of load

Keynote Session 3
Chairmen: L. Godoy

$09^{3o} – 10^{oo}$ *Jin-Guang Teng & T. Yu*: Hybrid FRP-concrete-steel double-skin tubular members: concept, behaviour and design

$10^{oo} – 10^{3o}$ *Luis Simões da Silva*: Stability and design of thin-walled steel shells

$10^{3o} – 11^{oo}$ Coffee Break

$11^{oo} – 13^{oo}$ Parallel sessions

Session 5.2: Cold-formed steel structures Chairmen: M. Mahendran & O. Celik	Session 1.2: Buckling Chairmen: L. Dunai & M. Djafour
1. *Luigi Fiorino, Ornella Iuorio, Vincenzo Macillo, Raffaele Landolfo*: "Multi-performance" design methodology for sheated cold-formed steel structures 2. *Tian Gao, Cristopher D. Moen*: A prediction model for girt-panel interaction in metal building wall systems 3. *Jian Yang, Qiang Liu*: An experimental study of cold-formed steel sigma purlins with sleeve connections 4. *Hartmut Pasternak, Gabriel Kubieniec:* Flange buckling of sinusoidal corrugated girders 5. *Iveta B. Georgieva, Luc Schueremans, Lincy Pyl, Guido De Roeck:* Built-up thin-walled members – experimental investigation 6. *Barbara Rossi, Romain Boman, Hervé Degée*: Effects of the roll forming process on the mechanical properties of thin-walled sections made of non-linear metallic materials 7. *Michal Jandera, Josef Machacek*: Measurement of residual stress pattern in stainless steel cold-rolled SHS 8. *Benoit P. Gilbert, Lip H. The, Hong Guan*: Self-shape optimisation of cold-formed steel closed profiles using genetic algorithm	1. *Cao Hung Pham, Gregory J. Hancock*: Elastic buckling of cold-formed channel sections in shear 2. *Nicolae Băluţ*: Second order analysis of unbraced runway girders 3. *S. Ádány, D. Visy*: Lateral-torsional buckling of thin-walled beams: An analytical solution based on shell model 4. *Anna Schudlich, Aaron von der Heyden, Cristopher D. Moen*: Distortional buckling experiments on cold-formed steel joists with unstiffened holes 5. *Giuseppe Brando, Gianfranco De Matteis*: Detrimental effects due to buckling on perforated angle members strength 6. *Jia-Hui Zhang, Ben Young*: Behaviour of cold-formed steel built-up open sections with edge and web stiffeners 7. *Kamil Słowiński, Walter Wuwer*: Investigations of closely spaced built-up bars with flexible joints 8. *Haider K. Ammash*: Finite difference analysis of linear plates buckling under in-plane patch loading

$13^{oo} – 14^{3o}$ Lunch

Keynote Session 4

Chairmen: M. Bradford

14^{30} – 15^{oo} *Narinder K. Gupta*: Large deformation in thin-walled structures under impact or blast loading

15^{oo} – 15^{30} *Joseph Loughlan, N. Yidris & K. Jones*: The failure of thin-walled lipped channel compression members due to coupled local-distortional interactions and material yielding

15^{30} – 16^{oo} *Robert Tremblay & C.A. Rogers*: Seismic design of low-rise steel buildings with flexible steel roof deck diaphragms: a Canadian perspective

16^{oo} – 16^{30} Coffee Break

16^{30} – 18^{30} Parallel sessions

Session 3.1: Behaviour of thin-walled structures under extreme loadings	Session 2.1: Post-buckling analysis and failure modes
Chairmen: C. Rogers & A. Kasai	Chairmen: J. Jönsson & S. Adany
1. *Yong Xu, Yiyi Chen, Xin Cheng, Lewei Tong*: Hysteretic behavior of light-weight steel portal frame 2. *Robert Massarelli, John Franquet, Kishor Shrestha, Robert Tremblay, Colin A. Rogers*: Dynamic tests of 0.76 to 1.21 mm steel deck diaphragms for single-storey buildings 3. *Iman Shamim, Jamin DaBreo, Colin A. Rogers*: Shake table testing of steel sheathed / cold-formed steel framed shear walls 4. *Tatsuo Kakiuchi, Akira Kasai, Kohei Miyazaki, Toshitaka Yamao, Saeki Inagaki*: A seismic performance evaluation of steel rigid frame viaducts integrated superstructure and substructures considering local buckling behaviors 5. *Suhaib Salawdeh, Jamie Goggins*: Numerical model for the seismic response of cold-formed steel braces 6. *Jacek Jankowski*: Dynamic buckling of composite column-beams with piezoelectric actuators subjected to axial compression 7. *Tomasz Kubiak, Mariusz Urbaniak*: Dynamic buckling of C-shape beam-columns subjected to bending 8. *Radoslaw J. Mania*: Viscoplastic thin-walled columns response to pulse load	1. *Joseph Loughlan, Noorfaizal Yidris*: The influence of end support boundary conditions on the local-overall interactive failure mechanics of plain channel section columns 2. *Eliane S. dos Santos, Pedro B. Dinis, Eduardo de M. Batista, Dinar Camotim*: Local-distortional-global mode interaction in lipped-channel columns: experimental results, numerical simulations and design considerations 3. *Pedro B. Dinis, Dinar Camotim, Nuno Silvestre:* On the design of cold-formed steel angle columns 4. *Olga Garzon, Tim Heistermann, Milan Veljkovic*: A study of an axially compressed cold-formed folded plate 5. *Iveta B. Georgieva, Luc Schueremans, Lincy Pyl, Guido De Roeck*: Non-linear finite element analysis of built-up members of cold-formed steel profiles 6. *Petr Hradil, Ludovic Fülöp, Asko Talja*: Global stability of thin-walled ferritic stainless steel members 7. *Pedro S. Ferreira, Francisco Virtuoso*: Post-buckling analysis and ultimate strength prediction of plates with the unloaded edges free from stresses using a semi-analytical method 8. *Piotr Paczos, Jakub Kasprzak*: Limit load of cold-formed thin-walled beams with double-box flanges

20^{oo} – 23^{oo} Conference Banquet

Wednesday, 07.09.2011

$08^{3o} – 10^{3o}$ Parallel sessions

Session 6.1: Composite structures	Session 8.3: Shell and space structures
Chairmen: R. Landolfo & K. Baskar	Chairmen: A. Spagnoli & A. Limam
1. *Morgan Dundu, Masela S. Mahlaule, Motlatsi S. Mothetho*: Behaviour of concrete filled composite steel columns 2. *K. Chithira, K. Baskar*: Investigation on the behaviour of circular CFT columns with and without shear connectors 3. *M.Y. Yazmil, N.E. Shanmugam, W.H.W. Badaruzzaman*: Analysis of composite plate girders with partial interaction 4. *Nahmat Khodaie*: Push-out test of short composite hollow circular steel section columns filled with expansive concrete 5. *Baskar Kaliyamoorthy, Sureshkannan Ganeshan*: Behaviour of composite deck slab made using steel sheets with perforated stiffeners 6. *Le-Wei Tong, De-Lei Yang, Hong-Zhi Zheng, Xiao-Ling Zhao, Fidelis R. Mashiri*: Fatigue strength of CHS-to-CFSHS T-joints under axial loading 7. *Cem Haydaroglu, Adem Turker, Kivanc Taskin, Oguz C. Celik*: Improving hysteretic behavior of tubular steel braces using advanced composites 8. *Ahmad Maleki, Ted Donchev, Homayoun Hadavinia, Mukesh Limbachiya*: Numerical modelling and experimental investigation of GFRP-steel sandwich shear walls	1. *Luis A. Godoy, Carlos F. Estrada, Fernando G. Flores*: Computer-based simulation of buckling failure of vertical sandwich cylinders embedded in soil 2. *Mark A. Bradford, Ehab Hamed, R. Ian Gilbert, Zhen-Tian Chang*: Short and long-term non-linear behaviour of thin-walled concrete domes: Theory and experiments 3. *Alexandru Botici, Teodor Let*: Research, projects and achievements of supporting towers for low power horizontal axis wind turbines 4. *Pramod Kumar Gupta*: Axial compression of tubular metallic shells having conical geometry 5. *Morteza Esmaeili, Parisa Haji Abdulrazagh*: On the behavior of long-span soil-metal box culverts under railway loads 6. *Victor Gioncu, Marius Mosoarca*: A grid shell for an atrium roof 7. *Nuno Silvestre, Bruno Faria, José N. C. Lopes*: Carbon nanotubes: are they thin-walled? 8. *Motohito Sato, Hiroyuki Shima*: Thin-shell theory for carbon nanotube deformation under pressure

$10^{3o} – 11^{oo}$ Coffee Break

$11^{oo} – 12^{3o}$ Parallel sessions

Session 3.2: Behaviour of thin-walled structures under extreme loadings	Session 9: Plated structures
Chairmen: G de Matteis & A. Ohtsuki	Chairmen: D. Beg & M. El Aghoury
1. *Dae Kyeom Park, Do Kyun Kim, Bong Ju Kim, Jung Kwan Seo, Jeom Kee Paik*: Material properties and crashworthiness of ASTM A131 steel plated structures at low temperature: An experimental and numerical study 2. *Lincy Pyl, Luc Schueremans, Willem Dierckx, Iveta Georgieva, Massimo Carroccio, Roel Trippaers:* Fire safety analysis of a 3D frame structure consisting of cold-formed sections; numerical modeling versus experimental behaviour based on a full-scale fire test 3. *Toshitaka Yamao, Masahaya Murata, Akira Kasai:* Evaluation of verification method and ultimate strain of I-section members subjected to axial force and biaxial bending moments 4. *Maria Kotełko, Radosław J. Mania*: Quasi-static and dynamic axial crushing of TWCF open-section members 5. *Baskar Kaliyamoorthy, Rahmathunnisa*: Non-linear behaviour of semi-rigid road safety barrier 6. *Nirosha Dolamune Kankanamge, Mahen Mahendran*: Lateral torsional buckling behaviour of cold-formed steel beams at elevated temperatures	1. *Franc Sinur, Antonio Zizza, Ulrike Kuhlmann, Darko Beg*: Buckling interaction of slender plates 2. *Ákos Marosi, László Gergely Vigh, László Dunai*: Simplified and non-linear simulation based analysis of complex plated elements of the Pentele bridge 3. *Franc Sinur, Darko Beg*: Parametric study on longitudinally stiffened plated girders 4. *Balázs Kövesdi, László Dunai*: Interacting stability behaviour of steel I-girders with corrugated webs 5. *Mircea I. Cristutiu, Daniel L. Nunes*: Influence of lateral restraints on the behaviour of thin-walled welded elements with variable cross-section 6. *Sathiyaseelan Subramani, Baskar Kaliyamoorthy*: Buckling behavior of thin plates under combined in-plane shear and tensile stresses

$12^{30} – 14^{00}$ Parallel sessions

Session 6.2: Composite structures Chairmen: M. Dundu & M. Georgescu	Session 2.2: Post-buckling analysis and failure modes Chairmen: C. Topkaya & D. Grecea
1. *Thomas Misiek, Paavo Hassinen*: Influence of imperfections and of discontinuities of the elastic foundation on the buckling strength of plane cross-section parts of sandwich panels 2. *Piotr Paczos, Jerzy Zielnica, Piotr Wasilewicz*: Limit load of a rectangular plate with metal foam core with the application to sandwich beam structures 3. *Atsumi Ohtsuki*: An innovative circular ring method for measuring Young's modulus of thin flexible multi-layered materials 4. *Pawel Jasion, Ewa Magnucka-Blandzi, Waclaw Szyc, Krzysztof Magnucki*: Global and local buckling of a sandwich circular plate with metal foam core 5. *Pawel Jasion, Ewa Magnucka-Blandzi, Waclaw Szyc, Piotr Wasilewicz, Krzysztof Magnucki*: Global and local buckling of a sandwich beam-rectangular plate with metal foam core	1. *Cao Hung Pham, Gregory J. Hancock*: Tension field action for cold-formed channel sections in shear 2. *Zhou Feng, Ben Young*: Web crippling strengths of high strength aluminum alloy tubes with perforated webs under ITF loading condition 3. *Martin Macdonald, Muditha P. Kulatunga*: Literature review of web crippling behaviour of cold-formed thin-walled structures 4. *F. Portioli, B. D'Amico, G. Di Lorenzo, R. Landolfo*: Modelling of geometric imperfections in numerical simulations of built-up cold-formed steel beams 5. *Mohamed A. El Aghoury, Adel H. Salem, Maged T. Hanna, Essam A. Amoush*: Finite element modeling of uni-axially loaded battened columns composed of four cold-formed angles 6. *Mohamed El Aghoury, Maged T. Hanna*: Strength of slender I-section beams under concentrated load

$14^{00} – 14^{15}$ Closing session

$14^{15} – 15^{30}$ Lunch