Spotlight on Structures
Research Journal of The Institution of Structural Engineers

In this section we shine a spotlight on papers recently published in *Structures* – the Research Journal of The Institution of Structural Engineers.

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Special Issue
Steel Structures: Mechanics, Simulation and Testing
Guest Editors: Nuno Silvestre and Leroy Gardner

This Special Issue of *Structures* contains updated and extended versions of a selected collection of papers presented at the Mini-Symposium on 'Steel Structures: Mechanics, Simulation and Testing', held within the 9th European Solid Mechanics Conference (ESMC), Madrid, 6–10 July 2015.

A new approach to modal decomposition of buckled shapes
Jurgen Becque

Interactively Induced Localization in Thin-walled I-section Struts Buckling About the Strong Axis
Elizabeth L. Liu and M. Ahmer Wadee

A GBT Model for the Analysis of Composite Steel–Concrete Beams with Partial Shear Interaction
Gerard Taig, Gianluca Ranzi, Daniel Dias-da-Costa, Giuseppe Piccardo and Angelo Luongo

Local–Distortional Interaction in Cold-formed Steel Columns: Mechanics, Testing, Numerical Simulation and Design
André Dias Martins, Dinar Camotim, Pedro Borges Dinis and Ben Young

Structural modeling of cold-formed steel portal frames
Xi Zhang, Kim J.R. Rasmussen and Hao Zhang

Experimental Study on Ferritic Stainless Steel RHS and SHS Cross-sectional Resistance Under Combined Loading
I. Arrayago and E. Real

Experimental study of stainless steel angles and channels in bending
M. Theofanous, A. Liew and L. Gardner

On the influence of the load sequence on the structural reliability of steel members and frames
Andreas Taras and Stefan Huemer

Advanced materials for concrete-filled tubular columns and connections
Ana Espinos, Manuel L. Romero, Antonio Hospitaler, Ana M. Pascual and Vicente Albero

Numerical investigation on I-beam to CHS column connections equipped with NiTi shape memory alloy and steel tendons under cyclic loads
Wei Wang, Tak-Ming Chan and Hongliang Shao

Articles in press

The following articles 'in press' have recently been made available online:

Effect of concrete compressive strength on transfer length
Alberto T. Ramirez-Garcia[a], Royce W. Floyd[b], W. Micah Hale[a] and J.R. Martí-Vargas[c]
[a] Department of Civil Engineering, University of Arkansas, Fayetteville, AR 72701, USA
[b] School of Civil Engineering and Environmental Science, Norman, OK 73019, USA
[c] Universitat Politècnica de València (UPV), València, Spain
http://dx.doi.org/10.1016/j.istruc.2015.10.006

Behavior of GFRP bridge deck panels infilled with polyurethane foam under various environmental exposure
Hesham Tuwair[a], Jeffery Volz[b], Mohamed ElGawady[a], Mohaned Mohamed[c], K. Chandrashekhara[c] and Victor Birman[d]
[a] Department of Civil, Architectural, and Environmental Engineering, Missouri University of Science and Technology, Rolla, MO, USA
[b] School of Civil Engineering and Environmental Science, The University of Oklahoma, Norman, OK, USA
[c] Department of Mechanical and Aerospace Engineering, Missouri University of Science and Technology, Rolla, MO, USA
[d] Engineering Education Center, Missouri University of Science and Technology, Rolla, MO, USA
http://dx.doi.org/10.1016/j.istruc.2015.10.008

On the improvement of buckling of pretwisted universal steel columns
Farid H. Abed, Mai Megahed and Abdulla Al-Rahmani
Department of Civil Engineering, American University of Sharjah, Sharjah, UAE
http://dx.doi.org/10.1016/j.istruc.2015.10.012

Application of Intelligent Passive Devices Based on Shape Memory Alloys in Seismic Control of Structures
Behrouz Asgarian, Neda Salari and Behnam Saadati
Civil Engineering Faculty, K.N. Toosi University of Technology, Tehran, Iran
http://dx.doi.org/10.1016/j.istruc.2015.10.013

Buckling and Vibration of Functionally Graded Material Columns Sharing Duncan's Mode Shape, and New Cases
Isaac Elishakoff[a], Moshe Eisenberger[b] and Axel Delmas[c]
[a] Department of Ocean and Mechanical Engineering, Florida Atlantic University, Boca Raton, FL 33431-0991, USA
[b] Faculty of Civil and Environmental Engineering, Technion, Israel Institute of Technology, Technion City, Haifa, Israel
[c] Ecole Centrale Paris, 92290 Châtenay-Malabry, France
http://dx.doi.org/10.1016/j.istruc.2015.11.002

An experimental study on the effect of PET fibers on the behavior of exterior RC beam-column connection subjected to reversed cyclic loading
Comingstarful Marthong[a] and Shembiang Marthong[b]
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[b] Earthquake Engineering Research Center, International Institute of Information Technology Hyderabad, Gachibowli, India
http://dx.doi.org/10.1016/j.istruc.2015.11.003

Bond behavior of smooth and sand-coated shape memory alloy (SMA) rebar in concrete
A.H.M. Muntasir Billah and M. Shahria Alam
School of Engineering, University of British Columbia, Kelowna, BC, Canada
http://dx.doi.org/10.1016/j.istruc.2015.11.005

Lateral Cyclic Behaviour of RC Columns Confined With Carbon Fibres
Pedro Faustino[a], Pedro Fradea and Carlos Chastre[a,b]
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http://dx.doi.org/10.1016/j.istruc.2015.11.004

Analytical approach of anchor rod stiffness and steel base plate calculation under tension
Konstantinos Daniel Tsavdaridis[a], Mohamed A. Shaheen[b], Charalampos Baniotopoulos[c] and Emad Salem[b]
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http://dx.doi.org/10.1016/j.istruc.2015.11.001

Highlights
- Anchor rod stiffness and steel base plate under tension
- Extensive parametric study using finite element analysis
- Parameters: diameter of anchor plate and anchor rod, and length of anchor rod
- Proposed equation represents the headed anchor bolts by mass-spring models
- Calculated stiffness used to commercial available structural software