Rosario MONTUORI | Curriculum

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Rosario Montuori is full Professor of Structural Engineering at the University of Salerno, Italy. He received a M.S/B.S. in Civil Engineering from the University of Salerno in 1997 and the PhD in Structural Engineering from the same University in 2001. He is author of more than 100 journal articles, conference papers and scientific reports. His principal research activity is devoted to the control of the collapse mechanism for steel structures by means of a rigorous application of “capacity design”. In particular, the research activity concerns the following structural typologies: Concrete Moment Resisting Frames, Steel Moment Resisting Frames with semi-rigid joints, Steel Irregular Moment Resisting Frames, Concentrically “X” and “V” Braced Frames, Concentrically “X” Braced Frames with Reduced Section (based on the reduction of the cross section area at the ends of the bracing members aiming to calibrate the axial resistance to a value equal to the internal action occurring under seismic load combination), Eccentrically Braced Frames, Moment Resisting Frame-Concentrically Braced Frame dual systems and Truss Moment Frames with special devices located at the bottom chord level at the ends of the truss girders. For several of the considered structural typologies, also the seismic structural reliability defined as the mean annual frequency (MAF) of exceeding a threshold level of damage, i.e. a limit state has been investigated and compared with reference both to the proposed design methodologies and to EC8 provisions. He developed theoretical fiber models able to predict the Moment-curvature behaviour of RC columns confined by means of angles and battens and of Concrete Filled Steel Tubular Columns (CFT) with Square Hollow Section (SHS). The proposed models have been validated by means of experimental tests. He developed a design procedure for some Tensegrity Structures able to account both for local and global stability in order to find the optimal design of minimum mass. He has participated as research staff member in various research projects funded by the Italian Ministry of Education and the Italian Network of Seismic Engineering Laboratories (ReLUIS). He serves as a reviewer for several international journals. He is Associate Editor of the International Journal **"Ingegneria Sismica - International Journal of Seismic Engineering”** (www.ingegneriasismica.org) since January 2015. In addition, he is an Editorial Board Membership of the following journals: **"The Open Construction & Building Technology Journal”** (https://benthamopen.com/TOBCTJ/editorial-board/, **“American Journal of Mechanical Engineering”,** (http://www.sciepub.com/journal/AJME/editors), **“American Journal of Civil Engineering and Architecture”**, (http://www.sciepub.com/journal/AJCEA/editors), **“Advances in Civil Engineering”** – Hindawi (https://www.hindawi.com/journals/ace/editors/).

He is in the Scientific Committee of the journal “Costruzioni Metalliche” (the Italian Journal of Steel Structure).

He has been teaching since 2001 in several courses of Structural and Seismic Engineering at the University of Salerno.

INVITED LECTURES

Plenary Lecture titled “**Problem of Minimum Mass for a Particular Tensegrity Structure”** at the “4th International Conference on OPTIMIZATION TECHNIQUES in ENGINEERING (OTENG '16)” organized by WSEAS (World Scientific and Engineering Academy and Society). October 22, 2016, Rome.

Keynote Lecture titled “**Design of Steel Moment Resisting Frames With Special Mechanical Devices: the Free from Damage Structure**” at the “3rd annual International Conference on Mechanics and Mechanical Engineering (MME 2016)” December 17, 2016 in Sichuan, Chengdu, China.at the

Expert Talk titled **“The Use of Reduced Beam Section for the Design of Steel Structures in Seismic Zone”** at the "Sixth International Conference on Advances in Civil, Structural and Environmental Engineering (ACSEE 2017)". 09 – 10 December, 2017. Hotel Novotel Roma Eur, Viale dell'Oceano Pacifico, 153, 00144 ROME, ITALY. Organized by Institute of Research Engineers and Doctors (IRED) Headquarters, 42 Broadway, Suite 12-217, New York, NY 10004, USA.

Keynote Lecture titled **New Design Methodology for Steel Moment Resisting Frames Equipped with Dissipative Devices at** the 2018 International Conference on Construction, Aerotropolis and Environmental Engineering(ICCAE 2018) - November 23-25,2018 - Vanung University, Taoyuan City,

Taiwan, Organized by: Vanung University, Society of Construction Engineers and Guangdong Academy of International Academic Exchange, School of Civil Engineering and Architecture of Wuhan University of Technology.

Keynote Lecture titled **Progress on Seismic Isolation and Energy Dissipation** in collaboration with Gianmario Benzoni and Giuseppe Lomiento at the "16th World Conference on Seismic Isolation, Energy Dissipation and Regulation of Dynamic Characteristics of Structures" 2019 July, 01-06, Saint-Petersburg.

Keynote Lecture dal titolo **Advances in the Design of Steel Structure for Seismic Protection** at the 5th International Conference on New Advances in Civil Engineering (ICNACE'19) Kyrenia, North Cyprus 8 – 10 November 2019.

Research Projects

Reliability of Moment Resistant Connections of Steel Building Frames in Seismic Areas (RECOS) (as sub-contractor)	199 199
Experimental Analysis and Component Based Modelling of Beam-to-Column Connections subjected to Low-Cycle Fatigue	199 199
Innovative Strategies for the Seismic Protection of Beam-to-Column Connections	200 200
Analysis of the Plastic Rotation Supply of Bolted Beam-to-Column Connections	200 200
Steel-Concrete Composite Buildings: Modelling, Analysis and Performance-Based Design	200 200
Innovative Methodologies for the Design of Concentrically Braced Frames	200 200
Seismic Reliability of Braced Steel Structures	200 200
Research Line N.5: "Development of Innovative Approaches for the Design of Steel and Steel-Concrete Composite Structures" - Research Unit N.6: "Seismic Response and Design Rules for Steel-Concrete Composite Bridges"	200 200
Theoretical and Experimental Analysis of Buckling Restrained Braces	200
Plastic Design for Failure Mode Control of Steel Frames equipped with Friction Dampers	200 201

Beam column dissipative connection: experimental analyses and theoretical model of innovative typologies		201 201
Research Line N.1: "Seismic Design Issues Concerning New Buildings" - Task 2 "Steel and Steel-Concrete Composite Structures" - Task 2.1 "Design Criteria and Methodologies for Predicting the Ultimate Behaviour of Beam-to-Column Connections and Column-Base Connections"		201 201
Design of concrete moment resisting frame with a global collapse mechanism		201 201
Comparison between different design methodology for the design of Reinforced Concrete Frames		201 201
Comparison between different design methodology for the design of Reinforced Concrete Frames		201 201
European Research Project – Research Fund Coal and Steel - GRANT AGREEMENT No. RFSR-CT-2015-00022: FREEDAM Project “FREE from DAMage steel connections” **Responsible for Task 3.4 - Design rules for frames** (Task of WP 3 Seismic Response of Frames with friction joints, robustness and sustainability). **Responsible for Task 4.3 - Definition of design tools** (Task of WP 4 Development of prototypes for industrial production). Coordinatore prof. Vincenzo Piluso		201 201
EQUALJOINTS Plus (2017-2019) “Valorisation of knowledge for European pre-QUALified steel JOINTS”. Grant Agreement No. 754048 - RFCS - Research Fund for Coal and Steel.	2017-2019	Res Coa Eur Cor
Floor joists influence on the behaviour of R.C. structures	2018-2019	U

Publications

[1] - C. Faella, R. Montuori, V. Piluso, G. Rizzano

“Failure Mode Control: Economy of Semi-Rigid Frames”, XI European Conference on Earthquake Engineering, Paris, 6-13 September, 1998.

[2] - R. Montuori, V. Piluso

“L’Uso dei «Dog-Bones» nella Progettazione a Collasso Controllato dei Telai Sismo-Resistenti”, XVII Congresso C.T.A., Italian Conference on Steel Construction, Napoli, 3-5 Ottobre, 1999.

[3] - R. Montuori, V. Piluso

“Design of Semi-Rigid Steel Frames for Failure Mode Control”, **capitolo 7.1** del libro: “Moment Resistant Connections of Steel Frames in Seismic Areas, Design and Reliability” (RECOS), Edited by F.M. Mazzolani, E & FN Spon, London, 2000.

[4] - R. Montuori, V. Piluso

“Plastic Design of Steel Frames with Dog-Bone Beam-to-Column Joints”, Third International Conference on Behaviour of Steel Structures in Seismic Areas, STESSA 2000, Montreal, Canada, 21-24 August, 2000.

[5] – F. M. Mazzolani, R. Montuori, V. Piluso

“Performance Based Design of Seismic-Resistant MR-Frames”, Third International Conference on Behaviour of Steel Structures in Seismic Areas, STESSA 2000, Montreal, Canada, 21-24 August, 2000.

[6] – R. Montuori,

“Il calcolo a rottura nella progettazione delle strutture sismo-resistenti in acciaio”. Tesi presentata per l’esame finale del dottorato di ricerca in “Ingegneria Strutturale”, XIII ciclo – Università degli studi di Salerno.

[7] – R. Montuori, V. Piluso

“Analisi della capacità portante di colonne in cemento armato rinforzate mediante angolari e calastrelli” XVIII Congresso C.T.A., Italian Conference on Steel Construction, Venezia, 26-28 Settembre, 2001.

[8] – L. Mastrandrea, R. Montuori, V. Piluso

“Esame comparativo delle metodologie di progettazione di controventi eccentrici sismo-resistenti ” XVIII Congresso C.T.A., Italian Conference on Steel Construction, Venezia, 26-28 Settembre, 2001.

[9] – L. Mastrandrea, R. Montuori, V. Piluso

“Progettazione a collasso controllato di controventi eccentrici sismo-resistenti”. XVIII Congresso C.T.A., Italian Conference on Steel Construction, Venezia, 26-28 Settembre, 2001.

[10] – L. Mastrandrea, R. Montuori, V. Piluso

“Il calcolo a rottura in presenza di interazione taglio-momento: i controventi eccentrici” XVIII Congresso C.T.A., Italian Conference on Steel Construction, Venezia, 26-28 Settembre, 2001

[11] – R. Montuori, V. Piluso

“Seismic Response Of X-Braced Frames: Comparison Between Different Design Criteria And Modelling Options”. 3Rd European Conference on Steel Constructions, Coimbra, Portugal 19-20 Settembre, 2002.

[12] – L. Mastrandrea, R. Montuori, V. Piluso

“Progettazione a collasso controllato di controventi eccentrici sismo-resistenti” **Costruzioni metalliche**: rivista bimestrale dei tecnici dell’acciaio, N°5 Ottobre 2002.

[13] – R. Montuori, V. Piluso, G. Rizzano

“Analisi teorico - sperimentale della capacità portante di colonne in c.a. pressoinflesse rinforzate con angolari e calastrelli”. V workshop italiano sulle strutture composte – Salerno, 28-29 Novembre 2002.

[14] – L. Mastrandrea, R. Montuori, V. Piluso

“Failure mode control of seismic resistant EB-frames”. Stessa 2003, 4th International Conference on Behavior of Steel Structures in Seismic Areas, Naples, 9-12 October 2003. Rotterdam: Balkema.

[15] – L. Mastrandrea, R. Montuori, V. Piluso

“Shear-moment interaction in plastic design: eccentrically braced frames” Stessa 2003, 4th International Conference on Behavior of Steel Structures in Seismic Areas, Naples, 9-12 October 2003. Rotterdam: Balkema.

[16] – A. Longo, R. Montuori, V. Piluso

“Proposta di una metodologia innovativa di progettazione per controventi concentrici ad "X" XIX Congresso C.T.A., Italian Conference on Steel Construction, Genova, 28-30 Settembre, 2003.

[17] – Collaborazione alla traduzione in lingua italiana del documento “ACI 440.2R-02, Guida per il Progetto e la Costruzione di Strutture in Cemento Armato Rinforzate Esternamente con Sistemi in FRP” documento a cura del comitato ACI 440 - edito da ACI INTERNATIONAL - Marzo 2004 - I S B N 88-87030-76-6.

[18] – R. Montuori, V. Piluso, G. Rizzano

“Analisi sperimentale dell’efficacia di intervento di rinforzo di pilastri in c.a. con angolari e calastrelli” Giornate AICAP2004 Verona 26-29 Maggio 2004

[19] – R. Montuori, V. Piluso, G. Rizzano

“Ultimate Resistance of Reinforced Concrete Columns Strengthened with Angles and Battens: Theoretical Model and Experimental Validation” 13th World Conference on Earthquake Engineering Vancouver, B.C., Canada, August 1-6, 2004

[20] –A. Longo, R. Montuori, V. Piluso

“Plastic design of seismic resistant X-braced frames” 4th European Conference on Steel and Composite Structures, Research – Eurocodes – Practice 8-10 June 2005, Maastricht, The Netherlands.

[21] –A. Longo, R. Montuori, V. Piluso

“Innovative conception of bracing members: reduced brace section solution” 4th European Conference on Steel and Composite Structures, Research – Eurocodes – Practice 8-10 June 2005, Maastricht, The Netherlands.

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“Plastic design of seismic resistant V-braced frames” 4th European Conference on Steel and Composite Structures, Research – Eurocodes – Practice 8-10 June 2005, Maastricht, The Netherlands.

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“Affidabilità sismica dei controventi concentrici a V: influenza dei criteri di progetto” XX Congresso C.T.A., Italian Conference on Steel Construction, Ischia, 25-28 Settembre, 2005.

[24] – V. Piluso, R. Montuori, L. Mastrandrea, C. Faella: "Innovative Connections and Design Procedures for Failure Mode Control of Seismic Resistant Steel Structures", pp. 109-154 in "Innovative Steel Structures for Seismic Protection of Buildings", edited by F.M. Mazzolani, ISBN 88-7699-049-6, Polimetrica Publishers, Monza (Italy), 2006

[25] – A. Longo, R. Montuori, V. Piluso

“Influence of design criteria on the seismic reliability of X-braced frames” 5th International Conference on Behavior of Steel Structures in Seismic Areas STESSA2006, Tokyo Institute of Technology, August 14 to 17, 2006.

[26] – A. Longo, R. Montuori, V. Piluso

“Seismic reliability of V-braced frames influence of different design approaches” 5th International Conference on Behavior of Steel Structures in Seismic Areas STESSA2006, Tokyo Institute of Technology, August 14 to 17, 2006.

[27] – A. Longo, R. Montuori, V. Piluso

“Affidabilità Sismica di Controventi Concentrici con Sezioni a Resistenza Ridotta” Workshop su “Materiali ed Approcci Innovativi per il Progetto in Zona Sismica e la Mitigazione della Vulnerabilità delle Strutture” - Università degli Studi di Salerno – Consorzio ReLUIS, 12-13 Febbraio 2007.

[28] – M.T. Giugliano, A. Longo, R. Montuori, V. Piluso

Controventi innovativi del tipo “RSS”: regole di progetto ed affidabilita’ sismica” **Ingegneria Sismica** n°3 – 2007- pp 7-24

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Affidabilità sismica di controventi con RSS (Reduced Section Solution) ANIDIS 2007 - XII convegno Nazionale – Pisa 10-14 Giugno 2007.

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“Seismic Reliability of V-braced frames with RSS bracings” ICSAS'07 - 6th International Conference on Steel and Aluminium Structures - 24-27 July 2007, Oxford, England.

[31] – M.T. Giugliano, A. Longo, R. Montuori, V. Piluso

“Influenza della ipotesi di omoschedasticità della dispersione della risposta strutturale nella valutazione dell’affidabilità sismica di controventi concentrici” XXI Congresso C.T.A., Italian Conference on Steel Construction, Catania 1-3 ottobre 2007.

[32] –G. Rizzano, R. Montuori, V.Piluso

“Le strutture in acciaio del complesso parrocchiale Santa Maria di Costantinopoli in Angri (Sa)” XXI Congresso C.T.A., Italian Conference on Steel Construction, Catania 1-3 ottobre 2007.

[33] – A. Longo, R. Montuori, V. Piluso

“Influence of design Criteria on the seismic Reliability of X-Braced Frames” , **Journal of Earthquake Engineering**, Volume 12, Issue 3 2008 – p. 406-431 - URL:http://dx.doi.org/10.1080/13632460701457231

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“'Failure Mode Control of X-Braced Frames Under Seismic Actions” , **Journal of Earthquake Engineering**, Volume 12, Issue 5 2008 – p. 728-759

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[35] – L. Mastrandrea, R. Montuori, V. Piluso

“Numerical Model of the Ultimate Behaviour of SHS-CFT Columns” 5th European Conference on Steel and Composite Structures, August 2008 – Graz, Austria

[36] – A. Longo, R. Montuori, V. Piluso

“Design Of Chevron Braced Frames: Different Approaches Around The World” 5th European Conference on Steel and Composite Structures, August 2008 – Graz, Austria

[37] – M.T. Giugliano, A. Longo, R. Montuori, V. Piluso

“Seismic reliability of concentrically braced frame: Influence of homoschedasticy hypotesis on structural response parameters” 6th International Probabilistic Workshop – 26-27 November 2008, Darmstatd, Germany.

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“Plastic design of seismic resistant V-braced frames" **Journal of Earthquake Engineering**, Volume 12 2008 – p.1246 – 1266

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“Reinforced Concrete Columns Strengthened with Angles and Battens subjected to Eccentric Load” **Engineering Structures** 31 (2009) 539_550. doi:10.1016/j.engstruct.2008.10.005

[40] – L. Mastrandrea, R. Montuori, V. Piluso

“Experimental analysis of the cyclic flexural response of cft members”. VII workshop italiano sulle strutture composte acciaio-calcestruzzo e legno calcestruzzo. Benevento 23-24 ottobre 2008.

[41] – R. Montuori, V. Piluso

“Ultimate Behaviour of Reinforced Concrete Columns Strengthened with Angles and Battens: Prediction of Moment-Rotation curves”. PROHITECH – First International Conference on Protection of Historical Buildings. Rome 21-24 June 2009.

[42] – A. Longo, R. Montuori & V. Piluso

“Plastic Design of Dissipative Truss Moment Frames”. 6th International Conference on Behavior of Steel Structures in Seismic Areas STESSA2009 - Philadelphia, Pennsylvania - USA August 16-20, 2009.

[43] – F. Iannone, L. Mastrandrea, R. Montuori & V. Piluso

“Experimental analysis of the cyclic response of CFT-SHS members”. 6th International Conference on Behavior of Steel Structures in Seismic Areas STESSA2009 - Philadelphia, Pennsylvania USA - August 16-20, 2009.

[44] – A. Longo, R. Montuori & V. Piluso

“Progettazione a collasso controllato di telai con travi reticolari dotate di dispositivi per la dissipazione supplementare dell’energia sismica” XXII Congresso C.T.A., Italian Conference on Steel Construction - Padova 28-30 Settembre 2009.

[45] – M.T. Giugliano, A. Longo, L. Mastrandrea, R. Montuori & V. Piluso

“Progettazione a collasso controllato di sistemi accoppiati telaio – controvento concentrico” - XXII Congresso C.T.A., Italian Conference on Steel Construction - Padova 28-30 Settembre 2009.

[46] – A. Longo, R. Montuori, V. Piluso

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doi: 10.1002/eqe.919

[47] – A. Longo, R. Montuori, V. Piluso

“Seismic Reliability of Chevron Braced Frames with Innovative Conception of Bracing Members”, **Advanced Steel Construction, an International Journal** - Vol. 5, No. 4, December 2009.

[48] – M.T. Giugliano, A. Longo, L. Mastrandrea, R. Montuori & V. Piluso

“Plastic design of MRF-CBF Systems” - ICASS '09 - Sixth International Conference on Advances in Steel Structures **-** Hong Kong, 16 - 18 December 2009.

[49] – A. Longo, R. Montuori & V. Piluso

“Failure Mode Control Of Dissipative Truss Moment Frames” ICASS '09 - Sixth International Conference on Advances in Steel Structures **-** Hong Kong, 16 - 18 December 2009.

[50] – M.T. Giugliano, A. Longo, R. Montuori & V. Piluso

“Failure mode and drift control of MRF-CBF dual systems” **The Open Construction and Building Technology Journal**, 2010, 4, 121-133 doi: 10.2174/1874836801004010121

[51] – M.T. Giugliano, A. Longo, R. Montuori & V. Piluso

“Plastic Design of Cb-Frames with Reduced Section Solution for Bracing Members” **Journal of Constructional Steel Research**, Elsevier. Vol.66 (2010) Issue 5, pp. 611_621 doi: 10.1016/j.jcsr.2010.01.001

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”Influence of homoschedasticity Hypothesis of Structural Response Parameters on Seismic Reliability of CB-Frames” Vol. 5, No. 2, June 2011, 120 -131. **Georisk**: Assessment and Management of Risk for Engineered Systems and Geohazards. DOI:10.1080/17499511003630538

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“Seismic Reliability of Traditional and Innovative Concentrically Braced Frames” **Earthquake Engineering and Structural Dynamics** - 2011; 40:1455 – 1474. DOI: 10.1002/eqe.1098

[54] – A. Longo, R. Montuori & V. Piluso

“Nonlinear Dynamic Analyses of a Design Procedure for DTMFs” 7th International Conference on Steel & Aluminium Structures. 13 – 15 July 2011 - Kuching, Sarawak, Malaysia

[55] – M.T. Giugliano, A. Longo, R. Montuori & V. Piluso

“Comparison Between Different Strategies for Drift Limitation of Mrf-Cbf Dual Systems Designed for Failure Mode Control”**.** 7th International Conference on Steel & Aluminium Structures. 13 – 15 July 2011 - Kuching, Sarawak, Malaysia

[56] – F. Iannone, L Mastrandrea, R. Montuori, V. Piluso, G. Rizzano

“Prediction of the Ultimate Behaviour of SHS-CFT Member: Experimental Validation of a Numerical Model” 6th European Conference on Steel and Composite Structures, September 2011 – Budapest, Hungary. ISBN:978-92-9147-103-4

[57] – M.T. Giugliano, R. Montuori & V. Piluso

“SEISMIC DESIGN OF IRREGULAR MOMENT RESISTING FRAMES: Design Procedure for Failure Mode Control” 6th European Conference on Steel and Composite Structures, September 2011 – Budapest, Hungary. ISBN:978-92-9147-103-4

[58] – M.T. Giugliano, A. Longo, R. Montuori & V. Piluso

“Sistemi accoppiati telaio-controventi concentrici: il calcolo a rottura per il controllo del meccanismo di collasso” XXIII Congresso C.T.A. Le Giornate Italiane della Costruzione in Acciaio 9-12 ottobre 2011 Lacco Ameno, Ischia (NA).

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“Ultimate Behaviour of CFT Members under non Uniform Bending: Experimental Analysis and Numerical Modelling” XXIII Congresso C.T.A. Le Giornate Italiane della Costruzione in Acciaio 9-12 ottobre 2011 Lacco Ameno, Ischia (NA).

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“Ultimate Behaviour Steel-Concrete Composite Bridge Piers in “The development of innovative approaches for the design of steel and composite steel-concrete structural system” the Line 5 of the ReLUIS-DPC 2005-2008 Project by F.M. Mazzolani and R. Zandonini. ISBN:9788889972250 - Doppiavoce, Napoli, 2011.

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“Validation of a Design Procedure for Failure Mode Control of Irregular Moment Resisting Frames by means of IDA Analyses” International Conference on Behavior of Steel Structures in Seismic Areas STESSA2012 - Santiago, Chile - January 9-12, 2012.

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“Failure Mode Control of steel MR-Frames with pin-jointed column bases”. XV Convegno ANIDIS. 30 giugno 2013 – 4 luglio 2013 Padova.

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“Seismic Response of MR- Frames with Semi-Rigid Connections”. XV Convegno ANIDIS. 30 giugno – 4 luglio 2013 Padova.

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“Nuovi progressi nella teoria del controllo del meccanismo plastico: soluzione in forma chiusa” XXIV Congresso C.T.A. pp. 554 – 562. Le Giornate Italiane della Costruzione in Acciaio. 30 settembre – 2 ottobre 2013 Torino. ISBN 978-88-905870-0-9.

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[75] – R. Montuori, A. Longo, V. Piluso

“Analisi e risposta sismica di sistemi accoppiati telaio– controvento concentrico: confronto tra differenti soluzioni di progetto” XXIV. Congresso C.T.A. pp. 546-553. Le Giornate Italiane della Costruzione in Acciaio. 30 settembre – 2 ottobre 2013 Torino. ISBN 978-88-905870-0-9.

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