# ANDREA DALL'ASTA

Prof. Structural Engineering
School of Architecture and Design
University of Camerino

Curriculum Vitae

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## PERSONAL

## EDUCATION

1993, PhD in Structural mechanics, University of Bologna

1988, Laurea (cum laude) in Civil Engineering, University of Ancona

## EMPLOYMENT

since 2000 Professor of Structural Engineering at University of Camerino

1998-2000 Associate Professor of Structural Engineering at Univ. Camerino

1997-1998 Researcher at University of Ancona

1993-1997 Post Doctoral Fellow at University of Ancona

## ACADEMIC and SCIENTIFIC EXPERIENCE

since 2013 Member of the governing body of the University of Camerino

since 2016 Member of the advisory board of the International PhD course in Civil and Environmental Engineering - (Univ. Pisa, Firenze, Perugia, Braunshweig)

since 2014 SAFER – Inter-university Consortium – Member of the Scientific board

2013-2009 President of the Senato of the University of Camerino

2006-2009 Director of LASIAD-Laboratory for Innovation in Architecture – Univ. Camerino

2005-2009 Director of the Department of Environment Construction and Design – Univ. Camerino

2005-2008 Director of the PhD course in Architecture and Design, School of Advanced Study of the University of Camerino (member until 2011)

2000-2010 Member of the advisory board of the PhD course in Structures and Infra-structures of the Marche Polytech. Univ.

2004-2006 Member of the Senato of the University of Camerino

1998-2005 Member of the deanship comittee of the Architecture Faculty

## TEACHING (UNIVERSITY)

since 1998 Structural Design, Univ. Camerino

since 2006 Structural shapes for industrial design, Univ. Camerino

2010-2011 Seismic design of existing bridges, Univ. of Pisa

2006-2010 Special structures, Polytech. Univ. Marche

2007-2008 Seismic design of bridges, Univ. of Trieste

2006-2007 Seismic design of steel structures, Univ. of L'Aquila

2003-2004 Structural problems in historical buildings, Univ. Camerino

1998-2004 Theory and design of steel structures, Polytech. Univ. Marche

1996-1998 Statics, Univ. Camerino

1996-1997 Eurocodes, Univ. of Ancona

## ACKNOWLEDGEMENTS

*Invited fellowship*

CEN-European Committee for Standardization, TC 250/SC 3/WG 13 "Evolution of EN 1993-2 – Bridges", expert nominated by the national standard body, since 2014

CEN-European Committee for Standardization, TC 250/SC 4/WG 3 "Evolution of EN 1994-2 - Eurocode 4 - Design of composite steel and concrete structures - Part 2: General rules and rules for bridges", expert nominated by the national standard body, since 2014

UNI-National Committee for Standardization. Member of the Structural Engineering commission, Vice-chairman of the Sub-Commission on Steel and Concrete composite structure, since 2014

Ministry of Infrastructure - Standard commission. Member of the work group n.4 Steel and composite structures, 2010-2011-

Onorary member of Accademia delle Scienze d'Abruzzo e delle Regioni Adriatiche, since 2017.

FPA-Steel promotion foundation. Member of the Seismic commission for structural steel, since 2006

ANIDIS. Italian association for the seismic engineering. Member of the executive board.

*Editorial activity*

Spazioricerca (scientific journal). Director from 01-11-2005 to 30-10-2009.

ISRN Civil Engineering (scientific journal). Member of the Editorial Board, 2012-2013.

Mathematical Problems in Engineering (scientific journal). Member of the editorial board, since 30-07-2016.

*Membership*

IABSE - International Association for Bridge and Structural Engineering

Ingegneria Sismica Italiana. Member of the scientific board, since 2012

Collegio dei Tecnici dell'Acciaio. Member since 2010

## RESEARCH TOPICS

The research activitiy of Andrea Dall'Asta mainly concerns the following topics.

**Nonlinear analysis and models**. Research results provide theoretical models to describe the mechanical and geometrical nonlinear behaviour of composite, hybrid and spacial structures, as systems with slipping cables. Relevant numerical solutions based on FEM are also provided.

**Passive systems for the control of the structural dynamic response**. Research results concern consitutive models to describe complex damping devices and relavant material (e.g. high damping rubber and BRB devices), in addition to studies of their efficiency in the control of the dynamic response, with special attention to the seismic design of bridge and existing buildings.

**Uncertainty propagation and probabilistic assessment of seismic risk**. The research results in this field provide insights on the influence of uncertainties concerning actions and structural response on the system performance, with a special attention to the description of the seismic action and to the dynamic response of bridge and buildings. The research activity is completed by studies on the response sensitivity and the optimal design based on probabilistic measures of the performance.

**International cooperations**.

Professor Dall'Asta cooperates with other international research groups, e.g. University of Louisiana (USA) (prof. M. Barbato, structural uncertainties and reliability), Rice University (USA) (prof. J.E. Padgett, risk analysis and loss analysis), TARRC research centre (UK) (dr. Hamid Ahamadi, seismic devices), Un. Liverpool (UK) (prof. E. Patelli, optimization and failure analysis), Xiamen Un. (China) (prof. Q. Gu, sensitivity analysis), Hasselt Un. (Belgium) (prof. H. Degée, hybrid systems), University of Sydney (Australia) (prof. G. Ranzi, composite structures), UCL University College of London (prof. F. Freddi), Strathclyde University Glasgow (prof. E. Tubaldi). These cooperations led to scientific results published in international journals and conference proceedings.

**Bibliometric indexes** (updated October 31st, 2018):

Scopus
Documents: 101
Citations: 1002 total citations by 596 documents
h-index: 19

**VQR 2004-2010 (National evaluation of the research quality)**

Presented research product 1
DALL'ASTA A., RAGNI L. (2006). Experimental tests and analytical model of high damping rubber dissipating devices. *ENGINEERING STRUCTURES*, vol. 28, p. 1874-1884
Evaluation 1: **Excellent**

Presented research product 2
DALL'ASTA A., ZONA A. (2004). Comparison and validation of diplacement and mixed elements for the non-linear analysis of continuous composite beams. *COMPUTERS & STRUCTURES*, vol. 82, p. 2117-2130
Evaluation 2: **Excellent**

Presented research product 3
RANZI G, DALL'ASTA A, RAGNI L, A. ZONA (2010). A geometric nonlinear model for composite beams with partial interaction. *ENGINEERING STRUCTURES*, vol. 32, p. 1384-1396
Evaluation 3: **Excellent**

**VQR 2011-2014 (National evaluation of the research quality)**

Presented research product 1
Zona A., Dall'Asta A. (2012). Elastoplastic model for steel buckling-restrained braces. JOURNAL OF CONSTRUCTIONAL STEEL RESEARCH, vol. 68, p. 118-125,
Evaluation 1: **Excellent**

Presented research product 2

Freddi F., Tubaldi E., Ragni L., Dall'Asta A. (2013). Probabilistic performance assessment of low-ductility reinforced concrete frames retrofitted with dissipative braces. EARTHQUAKE ENGINEERING AND STRUCTURAL DYNAMICS, vol. 42, p. 993-1011
Evaluation 2: **Excellent**

## SCIENTIFIC PUBLICATIONS

### **Articles** (international journals only, since 2010)

[1] Dall'Asta A., Tubaldi E. and Ragni L. (2015). Probabilistic seismic response assessment of linear systems equipped with nonlinear viscous dampers, *Earthquake Engineering and Structural Dynamics*, DOI: 10.1002/eqe.2623 (ISSN: 0098-8847, eISSN: 1096-9845)

[2] Tubaldi E., Dall'Asta A. and Dezi L. (2015). Seismic response analysis of continuous multispan bridges. *Shock and Vibrations*, Vol. 2015, 1-15, DOI: dx.doi.org/10.1155/2015/183756.

[3] Tubaldi E., Ragni L. and Dall'Asta A. (2015). Probabilistic seismic response assessment of linear systems equipped with nonlinear viscous dampers, *Earthquake Engineering and Structural Dynamics*, Vol. 44 (1), 101-120. (ISSN: 0098-8847, eISSN: 1096-9845)

[4] Tubaldi E., Barbato M., Dall'Asta A. (2014). Performance-based seismic risk assessment for buildings equipped with linear and nonlinear viscous dampers *Engineering Structures*, Vol.78, 90-99 (ISSN: 0141-0296)

[5] Gu Q., Zona A., Peng Y., Dall'Asta A. (2014). Effect of buckling-restrained brace model parameters on seismic structural response. Journal of Constructional Steel Research, Vol. 98(7), 100-113. (ISSN:0143-974X)

[6] Tubaldi E., Tassotti L., Dall'Asta A., Dezi L. (2014). Seismic response analysis of slender bridge piers. Earthquake Engineering and Structural Dynamics, Vol.43 (10), 1503-1519. (ISSN: 0098-8847, eISSN: 1096-9845)

[7] Tubaldi E., Dall'Asta A., Dezi L. (2013). Reduced formulation for post-elastic seismic response of dual-load path bridges *Engineering Structures*, Vol.51, 178-187, DOI:10.1016/j.engstruct.2011.12.026, (ISSN: 0141-0296).

[8] Freddi F., Tubaldi E., Ragni L., Dall'Asta A. (2013). Probabilistic performance assessment of low-ductility RC frames retrofitted with dissipative braces. *Earthquake Engineering and Structural Dynamics*, Vol.42(7), 993,1011, DOI: 10.1002/eqe.2255 (ISSN: 0098-8847, eISSN: 1096-9845).

[9] Tubaldi E., Dall'Asta A. (2012). Transverse free vibrations of continuous bridges with abutment restraint. *Earthquake Engineering and Structural Dynamics*, DOI:10.1002/eqe1190, in press (ISSN: 0098-8847, eISSN: 1096-9845).

[10] Tubaldi E., Barbato M, Dall'Asta A. (2012). Influence of model parameter uncertainty on transverse response and vulnerability of steel-concrete composite bridges with dual load path. *ASCE Journal of Structural Engineering*, Vol.138(3), 363-374, DOI:10.1061/(ASCE)ST.1943-541X.0000456 (ISSN:0733-9445, e-ISSN:1943-541X).

[11] Zona A., Dall'Asta A. (2012). Elastoplastic model for steel buckling-restrained braces. *Journal of Constructional Steel Research*, Vol.68(1), 118-125 (ISSN:0143-974X)

[12] Zona A., Ragni L., Dall'Asta A. (2012). Sensitivity-based study of the influence of brace over-strength distribution on the seismic response of steel frames with BRBs. *Engineering Structures*, Vol.37(1), 179-192, DOI:10.1016/j.engstruct.2011.12.026, (ISSN: 0141-0296).

[13] Ragni L., Zona A., Dall'Asta A. (2011). Analytical expressions for preliminary design of dissipative bracing systems in steel frames. *Journal of Constructional Steel Research*, Vol.67(1), 102-113 (ISSN:0143-974X)

[14] Tubaldi E., Dall'Asta A. (2011). A design method for seismically isolated bridges with abutment restraint. *Engineering Structures*, Vol.33(3), 786-795 (ISSN: 0141-0296)

[15] Ranzi G., Dall'Asta A., Ragni L., Zona A. (2010). A geometric nonlinear model for composite beams with partial interaction. *Engineering Structures*, Vol.32(5), 1384-1396 (ISSN: 0141-0296).

[16] Zona A., Barbato M, Dall'Asta A., Dezi L. (2010). Probabilistic analysis for design assessment of continuous steel-concrete composite girders. *Journal of Constructional Steel Research*, Vol.66(7), 897-905 (ISSN:0143-974X).

[17] Tubaldi E. Barbato M, Dall'Asta A. (2010). Transverse seismic response of continuous steel- concrete composite bridge exhibiting dual load path. *Earthquake and Structures An Int'l Journal*, Vol.1(1), 21-41 (ISSN:2092-7614, eISSN:2092-7622).

## RESEARCH SUPPORTED BY PUBLIC AUTHORITIES

- Ministerodell'Istruzione, dell'Università e della Ricerca (2018-2020), SAFE: Sustainable designof Anti-Seismic forniture as smart life-saving during an Earthquake – (call PON 2017). Funding 6.580.000,00 € (coordinator of the Structural Engineering Unit)

- European Union (2014-2015), STEEL-HEART: Steel-baased applications in earthquake prone areas (call Research Fund for Coils and Steel 2013). Funding: 31.044,00 € (working group member, total funding:627.106,00€)

- National Civil Protection Agency (2014-2018), RELUIS-3 Project: Net of Seismic Engineering Italian Loboratories. Line 6-Seismic isolation and seismic damping systems Funding: 32.000,00 € (unit coordinator): Line 9-Implicit risk Funding: 14.000,00 € (unit coordinator)

- Ministero dei Beni e delle Attivittà culturali e del Turismo (2014-2015). Progetto ARCUS - Verifica della sicurezza sismica dei musei statali. Funding 83.800,00€ (unit coordinators prof. L. Dezi and prof. A. Dall'Asta)

- University of Camerino (2013-2015). PROCULT: Probabilistic performance-based methodlogy for seismic risk assessment of cultural heritage (call FAR 2012). Funding 50.160,00€ (project coordinator)

- European Union (2010-2013), INNO-HYCO:Innovative Hybrid and Componsite steel-concrete structural solution in seismic areas (call Research Fund for Coils and Steel 2009). Funding:207.000,00 € (project coordinator, total funding:1.488.000,00€)

- National Civil Protection Agency (2010-2012), RELUIS-2 Project: Net of Seismic Engineering Italian Loboratories. Task AT2 – Code innovation and new technologies in seismic engineering . SubTask 2.3.2. Development of new technologies for the seismic retrofitting. Funding: 30.000,00 € (unit coordinator)

- European Union (2007-2010), Prefabricated steel structures for low-rise buildings in seismic areas (call Research Fund for Coils and Steel 2006). Funding:119.000,00 € (Unit coordinator)

- National Civil Protection Agency (2005-2009), RELUIS Project: Net of Seismic Engineering Italian Loboratories. Task 7 – Seismic isolation and dynamic control of structure and infra-structure. Funding: 90.000,00 € (unit coordinator)

- Fondazione cassa di risparmio di Macerata (2005-2006) Safety in existing construction. Funding:15.000,00 € (project coordinator)

- Soprintendenza archeologica delle Marche (2005). Preliminary studies for the the Extension for the archeologic Museum of Ascoli Piceno. Funding: 30.000,00 € (working group member)

- Min. Università e Ricerca (2002-2004): Advanced design and performance control of steel-concrete frames in seismic area (working group component)

- Min. Università e Ricerca (2000-2002). Seismic risk: strategies for the vulnerability mitigation (working group component)

- Ministero Attività Produttive- Società TRAVAGLINI S.r.l. (2000-2002). Models and systems for the automated management of construction companies. Funding:125.000,00 €. (project coordinator)

- Ministero Attività Produttive-Ubaldi Costruzioni s.r.l. (2000-2002). Process innovation in the management of the construction company production units. Funding:125.00,00 € (project coordinator).

- Min. Università e Ricerca (1997-1998) Safety in high performance concrete construction (working group comoponent).

Ancona, October 31, 2018 Andrea Dall'Asta