

## **Prof. ENRICO SPACOME: List of Selected Publications**

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### **Refereed Journal Papers**

- [1] Brando, B., Cocco, G., Mazzanti, C., Peruch, M., Spacone, E., Alfaro, C., Sovero, K., Tarque, N. (accepted for publication in 2019) Structural Survey and Empirical Seismic Vulnerability Assessment of Dwellings in the Historical Centre of Cusco, *International Journal of Architectural Heritage*, accepted for publication
- [2] Peruch, M., Spacone, E., Camata, G. (2019) "Nonlinear Analysis of Masonry Structures Using Fiber-Section Line Elements." *Earthquake Engineering and Structural Dynamics*, 1-20, doi: 10.1002/eqe.3188
- [3] Briseghella B., Colasanti V., Fenu L., Nuti C., Spacone E., Varum H. (2019) "Seismic Analysis by Macroelements of Fujian Hakka Tulou, Chinese Circular Earth Constructions Listed in the UNESCO World Heritage List, *International Journal of Architectural Heritage*, doi: 10.1080/15583058.2019.1618973
- [4] Liguori, N., Tarque, N., Barnabéen, C., Spacone, E., Viveen, de Filippo, G. (2019) "Hospital treatment capacity in case of seismic scenario in the Lima Metropolitan area, Peru." *International Journal of Disaster Risk Reduction*, 38, doi: 10.1016/j.ijdrr.2019.101196
- [5] Peruch, M., Spacone, E., Shing, P.B. (2019) "Cyclic Analyses of Reinforced Masonry Panels Using a Force-Based Frame Element." *ASCE Journal of Structural Engineering*, 145(7), doi: 10.1061/(ASCE)ST.1943-541X.0002335
- [6] Cantagallo, C., Camata, G., Spacone, E. (2019) "A probability-based approach for the definition of the expected seismic damage evaluated with Non-linear Time History Analyses." *Journal of Earthquake Engineering*, 23(2), 261-283, doi:10.1080/13632469.2017.1323043
- [7] Zerbin, M., Aprile, A., Beyer, K., Spacone, E. (2019). "Ductility reduction factor formulations for seismic design of RC wall and frame structures." 178, 102-115, *Engineering Structures*, doi: 10.1016/j.engstruct.2018.10.020 .
- [8] Silvero, F., Rodrigues, F., Montelpare, S., Spacone, E., Varum, H. (2019) "The path towards buildings energy efficiency in South American countries." *Sustainable Cities and Society*, 44, 646-665, 10.1016/j.scs.2018.10.028
- [9] Benítez, P., Rodrigues, F., Talukdar, S., Gavilán, S., Varum, H., Spacone, E. (2019) "Analysis of correlation between real degradation data and a carbonation model for concrete structures." *Cement and Concrete Composites*, 95, 247-259, doi: 10.1016/j.cemconcomp.2018.09.019
- [10]P. Ricci, V. Manfredi, F. Noto, M. Terrenzi, C. Petrone, F. Celano, M.T. De Risi, G. Camata, P. Franchin, G. Maglìulo, A. Masi, F. Mollaioli, E. Spacone, G.M. Verderame (2018) "Modelling and seismic response analysis of Italian code-conforming reinforced concrete buildings." *Journal of Earthquake Engineering*, 22(sup2), 105-139, doi: 10.1080/13632469.2018.1527733
- [11]Basaglia, A., Aprile, A., Spacone, E., Pilla, F. (2018) "Performance-based Seismic Risk Assessment of Urban Systems." *International Journal of Architectural Heritage*, 12 (7-8), 1131-1149, doi: 10.1080/15583058.2018.1503371
- [12]Rapone, D., Brando, G., Spacone, E., De Matteis, G. (2018) "Seismic vulnerability assessment of historic centers: description of a predictive method and application to the case study of Scanno (Abruzzi, Italy)." *International Journal of Architectural Heritage*, 12(7-7) 1171-1195, doi: 10.1080/15583058.2018.1503373
- [13]Breviglieri, M., Camata, G., Spacone, E. (2018) "Strengthened infilled RC frames: Continuum and macro modeling in nonlinear finite element analysis." *Composites Part B: Engineering*, 151, 78-91, doi: 10.1016/j.compositesb.2018.05.042B

- [14] Siano, R., Roca, P., Camata, G., Pelà, L., Sepe, V., Spacone, E., Petracca, M. (2018) "Numerical investigation of non-linear equivalent-frame models for regular masonry walls." *Engineering Structures*, 173, 512-529, doi: 10.1016/j.engstruct.2018.07.006
- [15] Faggella, M., Gigliotti, R., Mezzacapo, G., Spacone, E. (2018) "Graphic dynamic prediction of polarized earthquake incidence response for plan-irregular single story buildings" *Bulletin of Earthquake Engineering*, 16(10), 4971-5001, doi: 10.1007/s10518-018-0357-1
- [16] Mohammad, A.F., Faggella, M., Gigliotti, R., Spacone, E. (2018) "Effects of bond-slip and masonry infills interaction on seismic performance of older R/C frame structures." *Soil Dynamics and Earthquake Engineering*, 109, 251-265, doi: 10.1016/j.soildyn.2018.02.027
- [17] Terrenzi, M., Spacone, E., Camata, G. (2018) "Collapse limit state definition for seismic assessment of code-conforming RC buildings." *International Journal of Advanced Structural Engineering*, 10(3), 325-337, doi: 10.1007/s40091-018-0200-6
- [18] Waseem, M., Lai, G.C., Spacone, E. (2018) "Seismic hazard assessment of northern Pakistan." *Natural Hazards*, 90, 563-600, doi: 10.1007/s11069-017-3058-1
- [19] Masi, A., Chiauzzi, L., Santarsiero G., Manfredi, V., Biondi, S., Spacone, E. , Del Gaudio, C., Ricci, P. , Manfredi G., Verderame G.M. (2017) "Seismic response of RC buildings during the Mw 6.0 August 24, 2016 Central Italy earthquake: the Amatrice case study." *Bulletin of Earthquake Engineering*, doi: 10.1007/s10518-017-0277-5
- [20] Brando, G., De Matteis, G., Spacone, E. (2017) "Predictive model for the seismic vulnerability assessment of small historic centres: Application to the inner Abruzzi Region in ITALY." *Engineering Structures*, 153, p. 81-96, doi:10.1016/j.engstruct.2017.10.013
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- [22] Petracca, M., Pelà, L., Rossi. R., Oller. S., Camata, G., Spacone, E. (2016) "Multiscale computational first order homogenization of thick shells for the analysis of out-of-plane loaded masonry walls." *Computer Methods in Applied Mechanics and Engineering*, 315, p. 273-301, doi:10.1016/j.cma.2016.10.046.
- [23] Chaulagain, H., Rodrigues, H., Silva, V., Spacone, E., Varum, H. (2016) "Earthquake loss estimation for the Kathmandu Valley." *Bulletin of Earthquake Engineering*, 14, p. 59-88, doi: 10.1007/s10518-015-9811-5.
- [24] Petracca, M., Pelà, L., Rossi. R., Oller. S., Camata, G., Spacone, E. (2016) "Regularization of first order computational homogenization for multiscale analysis of masonry structures." *Computational Mechanics*, 57, p. 257-276, doi: 10.1007/s00466-015-1230-6.
- [25] Chaulagain, H., Rodrigues, H., Spacone, E., Varum, H. (2016) "Seismic safety assessment of existing masonry infill structures in Nepal." *Earthquake Engineering and Engineering Vibration*, 15, p. 251-268, doi: 10.1007/s11803-016-0320-6.
- [26] Mohammad, A.F., Faggella, M., Gigliotti, R., and Spacone, E.(2016) "Seismic performance of older R/C frame structures accounting for infills-induced shear failure of columns." *Engineering Structures*, 122, p. 1-13, doi: 10.1016/j.engstruct.2016.05.010
- [27] Raka, E., Spacone, E., Sepe, V., Camata, G. (2015). "Advanced frame element for seismic analysis of masonry structures: model formulation and validation." *Earthquake Engineering and Structural Dynamics*, 44, p. 2489-2506, doi: 10.1002/eqe.2594.
- [28] Chaulagain, H., Rodrigues, H., Spacone, E., Varum, H. (2015). "Assessment of seismic strengthening solutions for existing low-rise RC buildings in Nepal." *Earthquake and Structures*, 8, p. 511-538, doi: 10.12989/eas.2015.8.3.511.
- [29] Cantagallo, C., Camata. G., Spacone, E. (2015). "Influence of ground motion selection methods on seismic directionality effects." *Earthquake and Structures*, 8, p. 185-204, doi: 10.12989/eas.2015.8.1.185.

- [30] Tarque, N., Candido, L., Camata, G., Spacone, E. (2015). "Masonry Infilled Frame Structures: State-of-the-Art Review of Numerical Modeling." *Earthquake and Structures*, 8, p. 225-251, doi: 10.12989/eas.2015.8.1.225.
- [31] Kwon, M., Cho, C.-G., Kim, J., Spacone, E. (2015). "Nonlinear lattice-based model for Cyclic analysis of reinforced normal and high-strength concrete columns." *Advances in Structural Engineering*, 18, p. 1017-1027, ISSN: 1369-4332.
- [32] Chaulagain, H., Rodrigues, H., Spacone, E., Varum, H. (2015). "Seismic response of current RC buildings in Kathmandu valley." *Structural Engineering and Mechanics*, 53, p. 791-818, doi: 10.12989/sem.2015.53.4.791.
- [33] Chaulagain, H., Rodrigues, H., Silva, V., Spacone, E., Varum, H. (2015). "Seismic risk assessment and hazard mapping in Nepal." *Natural Hazards*, 78, p. 583-602, doi: 10.1007/s11069-015-1734-6.
- [34] Chaulagain, H., Rodrigues, H., Spacone, E., Varum, H. (2014). "Design Procedures of Reinforced Concrete Framed Buildings in Nepal and its Impact on Seismic Safety." *Advances in Structural Engineering*, 17, p. 1419-1442, doi: 10.1260/1369-4332.17.10.1419.
- [35] Tarque, N., Camata, G., Spacone, E., Varum, H., Blondet, M. (2014). "Non-linear dynamic analysis of a full-scaled unreinforced adobe module." *Earthquake Spectra*, 30, p. 1643-1661, doi: 10.1193/022512EQS053M.
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- [37] Chaulagain, H., Rodrigues, H., Spacone, E., Guragain, R., Varum, H. (2014). "Response Reduction Factor of Irregular RC Buildings in Kathmandu Valley." *Earthquake Engineering and Engineering Vibration*, 13, p. 455-470, doi: 10.1007/s11803-014-0255-8.
- [38] Cantagallo, C., Camata, G., Spacone, E. (2014). "Seismic Demand Sensitivity of Reinforced Concrete Structures to Ground Motion Selection and Modification Methods." *Earthquake Spectra*, 30, p. 185-204, doi: 10.1193/062812EQS226M.
- [39] Limkatanyu, S., Prachasaree, W., Kaewkulchai, G., Spacone, E. (2014). "Unification of Mixed Euler-Bernoulli-Von Karman Planar Frame Model and Corotational Approach." *Mechanics Based Design of Structures and Machines*, 42, p. 419-441, doi: 10.1080/15397734.2013.879042.
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- [41] Limkatanyu, S., Kuntiyawichai, K., Spacone, E., Kwon, M. (2013). "Nonlinear Winkler-based Beam Element with Improved Displacement Shape Functions." *KSCE Journal of Civil Engineering*, 17, p. 192-201, doi: 10.1007/s12205-013-1606-0.
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- [49] Camata, G., Spacone, E., and Zanic, R. (2007) "Experimental and Nonlinear Finite Element Studies of RC Beams Strengthened with FRP Plates." *Composites: Part B*, 38, 277-288.
- [50] Marini, A., and Spacone, E. (2006) "Analysis of R/C Elements Including Shear Effects." *ACI Structural Journal*, 103(5), 645-655.
- [51] Limkatanyu, S., and Spacone (2006). "Frame Element with Lateral Deformable Supports: Formulations and Numerical Validations." *Computers and Structures*, 84, 942-954.
- [52] Cho, C-G., Kwon, M., and Spacone, E. (2005). "Analytical Model of Concrete-Filled FRP Tubes Based on Multi-Axial Constitutive Laws." *ASCE Journal of Structural Engineering*, ASCE Journal of Structural Engineering, 131(9), 1426-1433.
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- [67]Balan, T., Spacone, E., and Kwon, M. (2001). "A 3d Hypoplastic Model for Cyclic Analysis of Concrete Structures." *Engineering Structures*, Volume 23(4), pp. 333-342.
- [68]Spacone, E., and Limkatanyu, S. (2000). "Response of Reinforced Concrete Members Including Bond-Slip Effects." *ACI Structural Journal*, Volume 97(6), pp. 831-839.
- [69]Milner, D., Spacone, E., and Frangopol, D.M. (2000). "New Light on Performance of Short and Slender Reinforced Concrete Columns under Random Loads." *Engineering Structures*, 23(2), 147-157.
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#### **Selected Book Chapters**

- [80]Spacone, E., Brando, G., Peruch, M., Mazzanti, C., Sovero, K., Tarque, N. (2019). "An Extensive Survey of the Historic Center of Cusco ofr Its Seismic Vulnerability Assessment." 18, 1257-1267, RILEM Bookseries, doi: 10.1007/978-3-319-99441-3\_135

#### **Conference Keynote Lectures**

- [81]Spacone, E. (2016). "The August 24, 2016 Central Italy earthquake." CINPAR 2016 – XII International Conference on Structural Repair and Rehabilitation, Porto, Portugal (Keynote Lecture).
- [82]Brando, G; Rapone, D; Spacone, E; Barbosa, A; Olsen, M; Gillins, D; Soti, R; Varum, H; Arede, A; Vila-Pouca, N; Furtado, A; Dias-Oliveira, J; Rodrigues, H; Stavridis, A; Bose, S; Faggella, M; Gigliotti, R; Wood, R.L. (2015). "Reconnaissance Report on the 2015 Gorkha Earthquake Effects in Nepal." Atti 16o Convegno ANIDIS-L'Ingegneria Sismica in Italia, 20 pp., Settembre, L'Aquila (Keynote Lecture).
- [83]Spacone, E., Camata, G., Faggella, M. (2007). "Nonlinear Models and Nonlinear Procedures for Seismic Analysis of Reinforced Concrete Frame Structures." Computational Methods in Structural Dynamics and Earthquake Engineering, Compdyn2007, Rethymno, Crete, Greece, June, 20 pages (Keynote Lecture).

#### **Selected Refereed Conference Proceeding Articles**

- [84]Labò S., Passoni C., Marini A., Belleri A., Camata G., Riva P., Spacone E. (2017). Prefabricated responsive diagrids for holistic renovation of existing mid-rise rc buildings. COMPDYN 2017. 6th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering. Rhodes Island, Greece, 15–17 June 2017. M. Papadrakakis, M. Fragiadakis (eds.).
- [85]Pantò B., Caddemi S., Caliò I., Spacone E. (2017). A New Discrete Macro-Node Element for the Seismic Behaviour Modelling of Reinforced Concrete Frame Structures. COMPDYN 2017. 6th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering. Rhodes Island, Greece, 15–17 June 2017. M. Papadrakakis, M. Fragiadakis (eds.).
- [86]Camata, G., Celano, F., De Risi M.T., Franchin, P., Magliulo, G., Manfredi, V., Masi, A., Mollaioli, F., Noto, F., Ricci, P., Spacone, E., Terrenzi, M., Verderame, G. (2017). Keynote lecture: RINTC Project: Nonlinear Dynamic Analyses of Italian Code-Conforming Reinforced Concrete Buildings for Risk of Collapse Assessment. COMPDYN 2017. 6th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering. Rhodes Island, Greece, 15–17 June 2017. M. Papadrakakis, M. Fragiadakis (eds.).
- [87]Gonzalez, A., Spacone, E., Nascimbene, R. (2017). Performance-based seismic design framework for RC floor diaphragms in dual systems. EURODYN 2017. Rome, Italy, 10-13 September 2017.
- [88]Faggella, M., Gigliotti, R., Morrone, C., Spacone, E. (2017). Mohr Circle-based Graphical Vibration Analysis and Earthquake Response of Asymmetric Systems. EURODYN 2017. Rome, Italy, 10-13 September 2017.
- [89]Tavani, C., Brando, G., De Matteis, G., and Spacone, E. (2017). "Damage Probability Matrices of eight historic centres after the 2009 L'Aquila Earthquake." Proceedings of the 16th World Conference on Earthquake Engineering, 12 pp., January, Santiago, Chile.
- [90]Gonzalez, A., Brando, G., and Spacone, E. (2016). "Digital Elevation Models for the Seismic Damage Assessment of Buildings: an Ontology Proposal." Proceedings of the XII International Conference on Structural Repair and Rehabilitation-CINPAR, 10 pp., October, Porto, Portugal.
- [91]Labò S., Passoni C., Marini A., Belleri A., Camata G., Riva R., Spacone E. (2016). Diagrid solutions for a sustainable seismic, energy, and architectural upgrade of European RC buildings. Proceedings of the XII International Conference on Structural Repair and Rehabilitation. 26-29 October, 2016, Porto, Portugal.

- [92] Nhemaufky, G.R., Brando, G., and Spacone, E. (2016). "Non Linear Analysis of Reinforced Concrete Buildings Built in Nepal according to Mandatory Rules of Thumb (MRT)." Proceedings of the International Conference on Earthquake Engineering and Post Disaster Reconstruction Planning, ICEE-PDRP, 12 pp., April, Bhaktapur, Nepal.
- [93] Varum, H; Barbosa, A; Arede, A; Vila-Pouca, N; Rodrigues, H; Furtado, A; Dias-Oliveira, J; Brando, G; Rapone, D; Spacone, E; Olsen, M; Gillins, D; Soti, R; Stavridis, A; Bose, S; Faggella, M; Gigliotti, R; Wood, R.L. (2016). "April 2015 Gorkha Earthquake in Nepal: Field Observations." Proceedings of the SISMIC 2016, 10º Congresso Nacional de Sismologia e Engenharia Sísmica, 12 pp., April, Ponta Delgada, Portugal.
- [94] Peruch, M., Spacone, E., and Shing, P.B. (2016). "Analysis of Reinforced Masonry Structures: Equivalent Frame Approach with Force-Based Elements." Proceedings of 16<sup>th</sup> International Brick and Block Masonry Conference, IBMAC 2016, 291-300, June, Padova, Italy, ISBN: 978-113802999-6.
- [95] Spacone, E., Cantagallo, C., Perrucci, D., Liguori, N. (2015). "Definition of a Multi-Level Procedure for the Seismic Safety Evaluation of Monumental Buildings: the Case of the Archaeological Museum Massimo Pallottino Located in the Norman Castle of Melfi (Italy)." Enhancing Resilience of Historic Cities to Earthquakes, Bardi edt., Accademia dei Lincei, Rome, November 3-4.
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