

CURRICULUM VITAE Dr. **Fabio Di Trapani** Ph.D



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Istitution: Department of Structural, Geotechnical and Building Engineering, **Politecnico di Torino**, corso Duca degli Abruzzi 24, 10129 Torino, Italy

Sex Male | **Date of birth** 30/11/1981 | **Nationality** Italian

CURRENT POSITION

- 2018 **National qualification as Associate Professor.**
- 2017 **Assistant Professor.** *Polytechnic of Turin (ITALY)*, Department of Structural, Geotechnical and Building Engineering.

PREVIOUS POSITIONS

- 2014-2016 **Post-Doctoral Researcher.** *University of Palermo (ITALY)*, Dipartimento di Ingegneria Civile, Ambientale, Aerospaziale, dei Materiali. **Research Project:** PO ITALIA-MALTA - SIMIT. Developing of integrated civil protection system between Sicilian and Maltese bodies involved in risk forecast. Criteria for evaluation of the seismic vulnerability of Mediterranean cross border countries buildings.

EDUCATION

- 2013-2014 **Visiting Research.** *University of California at San Diego (UCSD), San Diego (United States).* Department of Structural and Material Engineering.
Research topic: Development of numerical macro-models for masonry infilled RC frames.
Advisor: Prof. Benson Shing.
- 2011-2013 **PhD in Structural Engineering.** *University of Palermo (ITALY).*
Dissertation Title: *Masonry infilled RC frames: Experimental results and development of predictive techniques for the assessment of seismic response.*
Advisors: Prof. Maurizio Papia, Prof. Liborio Cavaleri
- 2008 **MS Degree in Building Engineering.** *University of Palermo (ITALY).*
Dissertation Title: *Masonry infilled RC frames: Experimental results and development of predictive techniques for the assessment of seismic response.*
Advisors: Prof. Maurizio Papia, Prof. Liborio Cavaleri
- 2005 **BS Degree in Building Engineering.** *University of Palermo (ITALY).*
Dissertation Title: *Design of RC structures according to semi-probabilistic limit-state method.*
Advisor: Prof. Liborio Cavaleri

RESEARCH PROJECTS PARTICIPATION

- RELUIS 2014 – 2018 Tamponature RS12 U.R. Politecnico di Torino as P.I.
- PO ITALIA-MALTA 2007-2013- **SIMIT Project.** Developing of integrated civil protection system between Sicilian and Maltese bodies involved in risk forecast. P.I. Prof. M Di Paola.

- RELUIS 2014 – PS Tamponature RS12 U.R. University of Palermo. P.I. : Prof. L. Cavaleri
- RELUIS 2010-2013 –University of Palermo. Linea 1.1.2 – Strutture in cemento armato ordinarie e prefabbricate – sub task: 1) Influenza della tamponatura sulla risposta strutturale; 2) Comportamento e rinforzo di pilastri e travi. P.I. Prof. M. Papia.

EDITORIAL BOARD MEMBER

- 2017 **Editorial Board member** of “Computers and Concrete” (Techno Press). ISSN: 1598-8198.
- 2016 **Editorial Board member** of “Earthquake Engineering” (Frontiers in built environment) Open Access Journal, <http://www.frontiersin.org/>.

GUEST EDITOR

- 2017 **Guest Editor** of “Ingegneria Sismica” Topic: *Seismic Vulnerability of Structures and infrastructures: Strategies for Assessment and Mitigation.*
- 2016 **Guest Editor** of “Earthquake Engineering” (Frontiers in built environment). Topic: *Innovative Seismic Isolating Systems for Life-Cycle Hazard Mitigation.*
- 2016 **Guest Editor** of “The open construction and building technology journal” Topic: *Seismic analysis and risk mitigation of existing constructions.*

JOURNAL REVIEWER

Reviewer for the following international journals:

- Advances in Structural Engineering. ISSN: 1369-4332.
- Structures (Elsevier).ISSN: 2352-0124.
- The open construction and building technology journal. ISSN: 1874-8368.
- Computers and Concrete (Techno Press). ISSN: 1598-8198.
- Journal of Structural Engineering (ASCE). ISSN: 0733-9445.
- Structural Concrete. ISSN: 1751-7648.
- Earthquake Engineering and Engineering Vibration (Springer). ISSN: 1671-3664.
- Structural Engineering and Mechanics (Techno Press). ISSN: 1225-4568.
- Engineering Structures (Elsevier). ISSN: 0141-0296.
- Construction and Building Materials (Elsevier). ISSN: 0950-0618.
- Canadian Journal of Civil Engineering (NRC). ISN: 1208-6029.
- Journal of Building Engineering (Elsevier). ISSN: 2352-7102

CONFERENCE SPEAKER

- 16th European Confenrece on Earthquake Engineering, Thessaloniki, Greece, 18-21 June, 2018
- Italian Concrete Days - Giornate AICAP 2018. CTE Congress: IL CALCESTRUZZO STRUTTURALE OGGI - TEORIA - IMPIEGHI - MATERIALI – TECNICHE. Lecco, Italy, 16-18 June 2018.
- XVII Confenrece ANIDIS, L'ingegneria Sismica in Italia, Pistoia, 2017.
- Opensees Days Europe 2017. 1st European Conference on OpenSees, Porto, Portugal, 19–20 June 2017
- 6th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPdyn), June 2017, Rhodes Island, Greece
- 16th International brick and block masonry conference (IBMAC), Padova, Italy,

- 2016.
- 16th International brick and block masonry conference (IBMAC), Padova, Italy, 2016.
 - Opensees Days Italy, Salerno, Italy, 2015.
 - Advances in Civil Engineering Conference, Vietri sul Mare, Italy, 2015.
 - 2nd ECEES, Second European Conference on Earthquake Engineering and Seismology. Istanbul, Turkey, 2014.
 - COMPDYN 2013, 4th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Kos Island, Greece, 2013.
 - XVI Conferenza ANIDIS, L'ingegneria Sismica in Italia, L'Aquila, 2015.
 - XV Conferenza ANIDIS, L'ingegneria Sismica in Italia, Padova, 2013.

CONFERENCE SPECIAL SESSION ORGANIZER AND SCIENTIFIC COMMITTEE MEMBERSHIP

- COMPDYN 2019, 7th International conference Computational Methods in Structural Dynamics and Earthquake Engineering, Crete, Greece, 2019.
- COMPDYN 2017, 6th International conference Computational Methods in Structural Dynamics and Earthquake Engineering, Rhodes Island, Greece, 2017. Minisymposium: "Computational strategies and assessment of in-plane and out-of-plane seismic response of infilled frames".
- XVII Conferenza ANIDIS, L'ingegneria Sismica in Italia, Pistoia, 2017. Special session: "Modelli computazionali e strategie di valutazione della performance sismica nel piano e fuori piano dei pannelli di tamponamento all'interno di strutture intelaiate".

TEACHING EXPERIENCE

2017-2018	Teaching (22 hr/25) at the PhD Course of Nonlinear Analysis for Seismic Engineering. Polytechnic of Turin. School of Engineering.
2017-2018	Teaching assistance for the Design of Concrete Structures class. Polytechnic of Turin. School of Engineering.
2011-2016	Teaching assistance for the Structural Engineering and Design of Concrete Structures class. University of Palermo. School of Engineering.
2011-2016	Teaching assistance for the Seismic Design class. University of Palermo. School of Engineering.

SCOPUS PARAMETERS

H-Index: 10

Citations: 240

PUBLICATIONS

International Journals

- 1- **DI TRAPANI, F.**, BERTAGNOLI G., FERROTTO, M.F., GINO, D. 2018. Empirical equations for the direct definition of stress-strain laws for fiber-section based macro-modeling of infilled frames, *Journal of Engineering Mechanics (ASCE)*. DOI: 10.1061/(ASCE)EM.1943-7889.0001532
- 2- **DI TRAPANI, F.**, CAVALERI, L., SHING P.B., 2018. A Macro-element Model for In-plane and Out-of-plane

- Responses of Masonry Infills in Frame Structures, *Journal of Structural Engineering (ASCE)*. 144(2): 04017198
- 3- BASONE F, CAVALERI, L., **DI TRAPANI, F.**, MUSCOLINO F. 2017. Incremental dynamic based fragility assessment of reinforced concrete structures: Stationary vs. non-stationary artificial ground motions, *Soil Dynamics and Earthquake Engineering*, 103, 105–117
 - 4- CAVALERI L., **DI TRAPANI F.**, FERROTTO M., DAVI' L. 2017. Stress-strain models for normal and high strength confined concrete: test of literature models reliability in reproducing experimental results . *Ingegneria Sismica*, 35 (Special Issue).
 - 5- CAVALERI, L., **DI TRAPANI, F.**, ASTERIS P.G., SARHOSIS V., 2017. Influence of column shear failure on pushover based assessment of masonry infilled reinforced concrete framed structures: A case study, *Soil Dynamics and Earthquake Engineering*, 100, 98-112.
 - 6- CAVALERI, L. , **DI TRAPANI, F.**, FERROTTO M.F. 2017. Experimental determination of viscous damper parameters in low velocity ranges, *Ingegneria Sismica*, 34(2): 64-74.
 - 7- CAMPIONE G., CAVALERI, L. , **DI TRAPANI, F.**, FERROTTO M.F. "Frictional effects in structural behavior of no-end-connected steel jacketed RC columns: Experimental results and new approaches to model numerical and analytical response", *Journal of Structural Engineering (ASCE)*, 143 (8), 04017070.
 - 8- ASTERIS, P.G., CAVALERI, L. , **DI TRAPANI, F.**, TSARIS, A.K. "Numerical modelling of out-of-plane response of infilled frames: State of the art and future challenges for the equivalent strut macromodels", *Engineering Structures* 2017 132: 110-122.
 - 9- CAVALERI, L., **DI TRAPANI, F.** , FERROTTO, M.F. "A new hybrid procedure for the definition of seismic vulnerability in Mediterranean cross-border urban areas", *Natural Hazards* 2017 4: 1-25.
 - 10- CAMPIONE G., CAVALERI L., **DI TRAPANI F.**, MACALUSO G., SCADUTO G.. "Biaxial deformation and ductility domains for engineered rectangular RC cross-sections: A parametric study highlighting the positive roles of axial load, geometry and materials". *Engineering Structures* 2016, 107(15):116-134.
 - 11- MINAFO' G., **DI TRAPANI F.**, AMATO G., Strength and ductility of RC jacketed columns: A simplified analytical method. *Engineering Structures* 2016 122: 184–195.
 - 12- ASTERIS P.G., REPAPIS C.C., TSARIS A.K, **DI TRAPANI F.**, CAVALERI L. "Parameters affecting the fundamental period of infilled RC frame structures", *Earthquake and Structures* 2015, 9(5): 999-1028
 - 13- ASTERIS, P.G., TSARIS, A.K., CAVALERI, L., REPAPIS, C., PAPALOU, A., **DI TRAPANI, F.**, KARYPIDIS, D.F. (2015). Prediction of the Fundamental Period of Infilled RC Frame Structures Using Artificial Neural Networks, *Computational Intelligence and Neuroscience*, Article ID 474106, <http://dx.doi.org/10.1155/2016/5104907>.
 - 14- ASTERIS, P.G., CAVALERI, L., **DI TRAPANI, F.**, MACALUSO, G., SCADUTO, G. Definition of seismic vulnerability maps for Civil Protection systems: The case of Lampedusa Island. *The Open Construction and Building Technology Journal* 2016, Volume 10, Issue Suppl 1: M5, Pagg. 87-105
 - 15- CAVALERI, L., **DI TRAPANI, F.**, ASTERIS, P.G.. Editorial of the Special Issue "Seismic Analysis and Risk Mitigation of Existing Constructions". *The Open Construction and Building Technology Journal*, 2016 Volume 10, Issue Suppl 1: M5, Pagg. 39-41.
 - 16- ASTERIS PG, CAVALERI L, **DI TRAPANI F.**, SARHOSIS V. A macro-modelling approach for the analysis of infilled frame structures considering the effects of openings and vertical loads. *Structure and Infrastructure Engineering* 2016 12(5): 551-566.
 - 17- **DI TRAPANI F.**, MACALUSO G, CAVALERI L, PAPIA M. Masonry infills and RC frames interaction: literature overview and state of the art of macromodeling approach. *European Journal of Environmental and Civil Engineering*, 2015 19(9): 1059-1095
 - 18- CAMPIONE G., CAVALERI L., MACALUSO G., AMATO G., **DI TRAPANI F.**, Evaluation of infilled frames: an updated in-plane-stiffness macro-model considering the effects of vertical loads. *Bulletin of Earthquake Engineering* 2015: 13(8): 2265-2281.
 - 19- CAVALERI L.,**DI TRAPANI F.**, MACALUSO G., SCADUTO G., "A Strategy for the Prediction of the Response of Hysteretic Systems: A Base for Capacity Assessment of Buildings under Seismic Load". *The open construction and building technology journal* 2014 8: 80-92.
 - 20- CAVALERI L., **DI TRAPANI F.**, Prediction of the additional shear action on frame members due to infills. *Bulletin of Earthquake Engineering* 2015; 13(5): 1425-1454.
 - 21- CAVALERI L., **DI TRAPANI F.**, MACALUSO G., PAPIA M., "Reliability of code proposed models for assessment of masonry elastic moduli". *Ingegneria Sismica*. Anno XXIX n.1. 2012.
 - 22- CAVALERI L., **DI TRAPANI F.**, MACALUSO G., PAPIA M., COLAJANNI P., "Definition of diagonal Poisson's ratio and elastic modulus for infill masonry walls". *Materials and Structures* 2014 47(1-2): 239-262

National and International Conference Proceedings

1. **DI TRAPANI F.**, MALAVISI, M., BERTAGNOLI, G., CAVALERI L. Evaluation of fragility of infilled frame structures subject aftershocks by means of double incremental dynamic analysis approach. 16th European Conference on Earthquake Engineering. Thessaloniki, Greece, 2018.
2. DALMASSO, M.; **DI TRAPANI, F.**; GINO, D.; GIORDANO, L.; MANCINI, G. On the robustness of masonry infilled reinforced concrete structures / Robustezza di strutture in calcestruzzo armato con tamponamenti, In: Atti del convegno ITALIAN CONCRETE DAYS - Giornate AICAP 2018 Congresso CTE - IL CALCESTRUZZO STRUTTURALE OGGI - TEORIA - IMPIEGHI - MATERIALI – TECNICHE, Lecco, Italy, 2018.
3. **DI TRAPANI, F.**, FERRO, G.A., RESTUCCIA, L. Inelastic displacement spectra for seismic verification of industrial facilities / Spettri di spostamento inelastici per la verifica sismica di capannoni industriali, In: Atti del convegno ITALIAN CONCRETE DAYS - Giornate AICAP 2018 Congresso CTE - IL CALCESTRUZZO STRUTTURALE OGGI - TEORIA - IMPIEGHI - MATERIALI – TECNICHE, Lecco, Italy, 2018.
4. **DI TRAPANI F.**, MALAVISI M., BERTAGNOLI G., CARBONE V.I. "A IDA based Framework for the Assessment of Seismic Fragility of Infilled Frames with and without prior Seismic Damage" XVII Convegno ANIDIS, L'ingegneria Sismica in Italia, Pistoia, 2017.
5. **DI TRAPANI F.**, CAVALERI L., BERTAGNOLI G., GINO D.. "A semi-empirical stress-strain model for equivalent strut fiber-section modeling of infilled frames" XVII Convegno ANIDIS, L'ingegneria Sismica in Italia, Pistoia, 2017.
6. **DI TRAPANI F.**, CAVALERI L., BERTAGNOLI G., MANCINI G., GINO D., MALAVISI M., 2017. "Definition of a fiber macro-model for nonlinear analysis of infilled frames". 6th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering. June 15-17, Rhodes, Greece.
7. **DI TRAPANI, F.**, SHING P.B, CAVALERI L. "Modelling in-plane and out-of-plane response of infilled frames through a fiber macro-model". 1st European Conference on OpenSees, Porto, Portugal, 19–20 June 2017.
8. **DI TRAPANI, F.**, M. MALAVISI, G. BERTAGNOLI, V.I. CARBONE. "Evaluation of seismic fragility of infilled reinforced concrete frames subject to aftershocks". 1st European Conference on OpenSees, Porto, Portugal, 19–20 June 2017.
9. SHING P.B., CAVALERI L., **DI TRAPANI, F.** "Prediction of the out-of-plane response of infilled frames under seismic loads by a new fiber-section macro-model", 16th International brick and block masonry conference, Padova, Italy, 2016.
10. CAMPIONE G., CANNELLA, F, CAVALERI L., **DI TRAPANI F.**, MINAFO' G. "Shear and flexural strength of corroded R.C. beams". Italian Concrete Days - AICAP & CTE, Rome, 2016.
11. CAVALERI L., **DI TRAPANI F.**, FERROTTO M.F. Steel jacketing of RC columns: Reliability of capacity laws for concrete. SBE16 MALTA, International conference, MALTA, 2016.
12. CAMPIONE G., CAVALERI L., **DI TRAPANI F.**, FERROTTO M. F., MACALUSO G., PAPIA M. "Influenza dei Fenomeni Attritivi nella Risposta Strutturale di Colonne in c.a. Rinforzate con Incamiciatura in Acciaio: Confronto numerico-sperimentale e Predizione Analitica della Capacità". ANIDIS Conference, L'Aquila, Italy, 2015.
13. CAVALERI L., **DI TRAPANI F.**, MACALUSO G. "Definizione di Mappe di Vulnerabilità Sismica per le Aree Mediterranee Transfrontaliere: Il caso di Lampedusa". ANIDIS Conference, L'Aquila, Italy, 2015.
14. MINAFO' G., **DI TRAPANI F.**, AMATO G.: "A simplified method for ductility calculation in RC jacketed columns". XVI ANIDIS Conference, L'Aquila, Italy, 2015
15. **DI TRAPANI F.**, CAVALERI L. MACALUSO G, BILELLO C. On the definition of seismic vulnerability maps in cross-border Mediterranean areas. Conference: Geo-Risks in the Mediterranean and their Mitigation, Malta, 2015.
16. CAMPIONE G., CAVALERI L., **DI TRAPANI F.**, FERROTTO M. F., MACALUSO G., PAPIA M. "Modelling steel jacketed RC columns: Remarks by experimental-numerical comparisons". Opensees Days Italy, Salerno, Italy, 2015.
17. CAVALERI L., **DI TRAPANI F.**, PAPIA M. "Seismic performance of masonry infilled RC structures via pushover based procedures: Outcomes under different modelling hypotheses of a case study. Advances in Civil Engineering Conference, Vietri sul Mare, Italy, 2015.
18. CAVALERI L.,**DI TRAPANI F.**, MACALUSO G., SCADUTO G., "Biaxial curvature and ductility capacity of RC column base cross sections". 2nd ECEES, Second European Conference on Earthquake Engineering and Seismology. Istanbul, Turkey, 2014.
19. CAVALERI L., **DI TRAPANI F.**, MACALUSO G., PAPIA M., "La Stima dei Moduli Elastici delle Murature Secondo le Norme Tecniche: il Confronto con la Sperimentazione". XIV Convegno ANIDIS, L'ingegneria Sismica in Italia, Bari, 2011.

20. COLAJANNI P., **DI TRAPANI F.**, FOSSETTI M., MACALUSO G., PAPIA M., "Cyclic axial testing of columns confined with fiber reinforced cementitious matrix". 6th International Conference on FRP Composites in Civil Engineering (CICE), Roma, 2012.
21. CAVALERI L., COLAJANNI P., **DI TRAPANI F.**, FOSSETTI M., MACALUSO G., PAPIA M., "Strength and Ductility of Confined Concrete Columns under Axial Load and Biaxial Bending". 15^o World Conference of Earthquake Engineering (WCEE), Lisbona 2012.
22. CAVALERI L., **DI TRAPANI F.**, PAPIA M., "Strutture intelaiate e tamponate in c.a.: sperimentazione e sviluppi nella modellazione analitica e numerica". 19^o Convegno CTE, Novembre 2012.
23. CAVALERI L., **DI TRAPANI F.**, PAPIA M., "Strutture intelaiate in c.a. con tamponamenti: analisi degli effetti locali in presenza di azioni sismiche". XV Convegno ANIDIS, L'ingegneria Sismica in Italia, Padova, 2013.
24. CAVALERI L., **DI TRAPANI F.**, PAPIA M., "Analysis of local shear effects in brick masonry infilled RC frames". COMPDYN 2013, 4th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Kos Island, Greece, 12–14 June 2013.

PhD Thesis

DI TRAPANI F., "Masonry infilled RC frames: Experimental results and development of predictive techniques for the assessment of seismic response". Ph.D Thesis. Università degli Studi di Palermo 2014. Advisors: Prof. L. Cavaleri, Prof. M. Papia.

Book Chapters

CAVALERI L., **DI TRAPANI F.**, MACALUSO G., SCADUTO G. (2015). Chapters V-IX in Establishment of an Integrated Italy–Malta Cross–Border System of Civil Protection: Engineering Aspects, Edited by Chiara Cicero, Grazia Lombardo, chapter VI: pages 91-96; Aracne Editrice., ISBN: 978-88-548-8257-7.

Turin, July 24, 2018

Fabio Di Trapani PhD

