CARMINE GALASSO

Professor of *Catastrophe Risk Engineering*

Department of Civil, Environmental & Geomatic Engineering (CEGE)
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[redacted]

Education

01/2011	PhD in Earthquake Engineering and Seismic Risk (Advisor: I. Iervolino); University of Naples Federico II, Italy.
03/2007	MSc in Civil Engineering Management (graduated magna cum laude; 5 yrs); University of Naples Federico II, Italy.

Professional History

10/2021 - present	*Professor* (Full) of *Catastrophe Risk Engineering* and Director of Postgraduate Taught Studies, Department of Civil, Environmental & Geomatic Engineering (CEGE), UCL, UK.
09/2019 - present	*Associate Professor* (part-time, Art. 6, comma 12, Legge 240 del 30.12.2010 & Art. 1, comma 633, legge 205/2017) of *Structural Engineering*, Scuola Universitaria Superiore (IUSS) Pavia, Italy.
10/2017 - 09/2021	*Associate Professor*, CEGE, UCL, UK.
07/2014 - 09/2017	*Assistant Professor*, CEGE and Institute for Risk & Disaster Reduction, UCL, UK.
10/2013 - 06/2014	*Assistant Professor*, School of Civil Engineering and Geosciences, Newcastle University, UK.
02/2012 - 12/2013	*Catastrophe Risk Modeler*, Engineering Analysis and Research, Applied Insurance Research (AIR) Worldwide Corporation, San Francisco, CA, USA.
10/2011 - 12/2011	*Visiting Research Associate*, Department of Architectural Engineering, Graduate School of Engineering, The University of Tokyo, Japan.
01/2011 - 01/2012	*Postdoctoral Research Associate*, Department of Civil and Environmental Engineering, The Henry Samueli School of Engineering, University of California, Irvine, CA, USA.

Academic Service, Knowledge Transfer, and Impact

Editorial Work/Academic	Executive Editor, Operations for *Seismica* (https://seismica.library.mcgill.ca/).
	Associate Editor for *International Journal of Disaster Risk Reduction* by Elsevier

Conference Organizing Committees/Peer Review

(https://www.journals.elsevier.com/international-journal-of-disaster-risk-reduction).

Associate Editor for *Frontiers in Earth Science/Geohazards and Georisks* (https://www.frontiersin.org/journals/earth-science/sections/geohazards-and-georisks).

Member of the Editorial Board and Handling Editor for *Communications Engineering - Nature* by Springer Nature (https://www.nature.com/commseng/).

Member of the Editorial Board and Handling Editor for *Journal of Earthquake Engineering* by Taylor & Francis Group (https://www.tandfonline.com/journals/ueqe20).

Guest Editor for a Special Issue on *Ground-breaking technologies, big data, and innovation for disaster risk modeling and reduction* in Natural Hazards and Earth System Sciences (https://nhess.copernicus.org/articles/special_issue1033.html).

Guest Editor for a Special Issue on *Probabilistic Risk Assessment for Hydro-meteorological Hazards* in the ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering (https://ascelibrary.org/page/ajrua6/hydro_meteorological_hazards).

Section Editor for *Seismic Risk Assessment* in Encyclopaedia of Earthquake Engineering by Springer Nature.

Organiser and co-chair of Mini-symposia/Special Sessions at 1) the 13th International Conference on Structural Safety and Reliability (ICOSSAR2021-2022), Shanghai, China, September 13-17, 2022; 2) the 2019 Society for Earthquake and Civil Engineering Dynamics (SECED) Conference, Greenwich, UK, September 9-10, 2019; 3) the 13th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASP13), Seoul, South Korea, May 26-30, 2019; 4) the European Geosciences Union (EGU2019) General Assembly, Vienna, Austria, April 8-12, 2019; 5) the American Geophysical Union (AGU2018) Fall Meeting, Washington DC, USA, December 10-14, 2018; 6) the 12th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASP12), Vancouver, Canada, July 12-15, 2015; 7) the 2nd International Conference on Vulnerability and Risk Analysis and Management (ICVRAM2014) & 6th International Symposium on Uncertainty Modelling and Analysis (ISUMA2014), Liverpool, UK, July 13-15 2014; 8) the 11th International Conference on Structural Safety & Reliability (ICOSSAR2013), Columbia University, New York, NY, USA, June 16-20.

International Referee for 1) the Icelandic Research Fund; 2) the Czech Science Foundation; 3) Fondazione Cassa di Risparmio di Verona Vicenza Belluno e Ancona, Italy; 4) the Italian Ministry for Education, University and Research (MIUR); 5) Mitacs, Canada; 6) the UK Research Councils/ UK Research and Innovation (UKRI) (Engineering and Physical Sciences Research Council – EPSRC and Natural Environment Research Council – NERC); 7) the Natural Sciences and Engineering Research Council of Canada/Conseil de recherches en sciences naturelles et en génie du Canada.

Referee for over 30 international journals/book series/conference proceedings.

Full detailed list at: https://www.carminegalassoresearch.com/editorial

Invited/Keynote Talks/Lectures

>30 invited talks/lectures (not including several oral presentations delivered at conferences) + 6 keynote lectures in academic institutions, companies, and international conferences in Italy, Switzerland, UK, USA, China, Indonesia, Philippines, and Peru.

Full detailed list at: https://www.carminegalassoresearch.com/invited-talks

Professional Bodies

Member of the European Geophysical Union (EGU), Society of Earthquake and Civil Engineering Dynamics (SECED; UK), American Society of Civil Engineering (ASCE; USA), American Geophysical Union (AGU; USA), Earthquake Engineering Research Institute (EERI; USA), Seismological Society of America (SSA; USA).

Consulting

Lead Consultant at UCL for industrial/consultancy project funded by the UK Foreign, Commonwealth, and Development Office (FCDO); Department for International Development (DfID); the World Bank; Willis Research Network; Santam Re; Motorola Solution Foundation (about **£1M**).

Full detailed list at: https://www.carminegalassoresearch.com/consulting

Other

Member of the Earthquake Engineering Research Institute (EERI;

USA) – Learning from Earthquakes (LFE) Program. *Selected as one of the three members (worldwide competition) to participate in a reconnaissance mission to the 2016 Central Italy Earthquakes (May 2017).*

Member of the Earthquake Engineering Field Investigation Team (EEFIT;

UK) – Deputy team leader for the reconnaissance mission to the Amatrice, Italy 24/08/2016 Earthquake (October 2016).

Media activity centered on communicating to the public about recent worldwide earthquakes and tsunamis. This has included live television and radio interviews for the BBC, Sky News, US National Public Radio, and other outlets, and interviews for several international newspapers and magazines (Time magazine, The Guardian, New York Times, etc.).

Prizes, Awards, and Other Honours

05/2019 — Student Recognition Award for a supervised PhD student (David Wilkie) provided by the International Civil Engineering Risk and Reliability Association (CERRA) for the paper '*Fatigue Reliability of Offshore Wind Turbines using Gaussian Processes*' (by D. Wilkie, **C. Galasso**) presented at the *13th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASP13)*, Seoul, South Korea, May 26-30, 2019.

11/2015 — Young Scientist Grant provided by the European Center for Geodynamics and Seismology (ECGS) for the paper '*Integrating semi-active structural control and earthquake early warning: preliminary results*' (by O. Velazquez Ortiz and **C. Galasso**) presented at the ECGS & ESC/EAEE Joint Workshop on *Earthquake and Induced Multi-Risk Early Warning and Rapid Response*, Luxembourg, November 18-20, 2015.

07/2015 — Student Recognition Award for a supervised PhD student (Stelios Minas) provided by the International Civil Engineering Risk and Reliability Association (CERRA) for the paper '*Spectral-Shape Proxies and Simplified Fragility Analysis of Mid-rise Reinforced Concrete Buildings*' (by S. Minas, **C. Galasso**) presented at the *12th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASP12)*, Vancouver, Canada, July 12-15, 2015.

01/2012 — Young Researcher Award provided by the Tokyo Institute of Technology for the paper '*Elastic and post-elastic response of structures to hybrid broadband synthetic ground*

motions' (by **C. Galasso**, F. Zareian, I. Iervolino, RW. Graves) presented at the *9th International Conference on Urban Earthquake Engineering/4th Asia Conference on Earthquake Engineering (9th CUEE/4th ACEE)*, Tokyo, Japan, March 6-8. 2012.

10/2011 Selected as one of the three US research scholars (national competition) to participate in the Japan Science and Technology Agency (JST) - Earthquake Engineer Research Institute (EERI) US-Japan Collaborative Research on the 2011 Tohoku Earthquake at the University of Tokyo, Japan (http://www.eng.uci.edu/news/2011/11/postdoctoral-fellow-selected-research-japanese-earthquake).

05/2010 Student Grant Award (CVs competition) provided by the Swiss Society for Earthquake Engineering and Structural Dynamics (SGEB) to attend (and present four papers at) the *14th European Conference on Earthquake Engineering* in Ohrid, Republic of Macedonia, August 30 – September 3, 2010.

02/2010 Student Grant Award provided by the Precast/Prestressed Concrete Institute (PCI) to attend (and present two papers at) the *3rd International FIB Congress and Exhibition* in Washington DC, USA, May 29 – June 2 2010.

01/2010 Student Grant Award provided by the University of Naples Federico II for Building Engineering undergraduate students' guidance and tutorship services.

01/2009 Student Grant Award provided by the University of Karlsruhe to attend the *Early Warning System for Transportation Infrastructures Workshop* in Karlsruhe, Germany, February 9-10, 2009.

Research Summary and Recent Research Programs (only > £100,000)

My work at UCL focuses on leading-edge civil and structural engineering areas and directly builds upon my previous experiences in the US catastrophe modeling industry. I have established the first Catastrophe Risk Engineering University Laboratory (CRE-Lab) worldwide. My research in CRE is strongly cross-disciplinary and problem-focused, dealing with the development and application of probabilistic/statistical methods and computational/digital tools for catastrophe risk modeling and disaster risk reduction. I investigate risks to building portfolios and infrastructure exposed to multiple natural hazards, including earthquakes, strong wind, and flooding, placing a particular emphasis on community-based infrastructure (schools, hospitals, heritage assets) in developing countries. I collaborate with UK national and global research entities and stakeholders by providing credible scientific expertise to improve risk-based decision-making, enhancing our collective ability to understand, quantify, and manage natural-hazard risks. For instance, I am an active member of the Willis Research Network (WRN), an award-winning collaboration between academia and the insurance industry. I also work with the Global Facility for Disaster Reduction and Recovery (GFDRR) at the World Bank. Both WRN and GFDRR are co-funding some of my research projects.

*My research is funded by the UK Research and Innovation (UKRI), the European Commission, the British Council, the Chinese International Centre for Collaborative Research on Disaster Risk Reduction (ICCR-DRR), the GFDRR, the WRN, and the Motorola Solutions Foundation, among others. I am/have been the **PI on various grants totaling approximately £5M over the past seven years**. In addition, I am/have been a **co-I on various grants totaling approximately £1.5M** over the past seven years*.

2014 - present PI/Supervisor at UCL for scholarships funded by CSC - China Scholarship Council; CONACYT- (Mexican) Consejo Nacional de Ciencia y Tecnología; TC Millî Eğitim Bakanlığı (Turkish Ministry of National Education); and UKRI (about **£0.8M**).

To start (10/2022 - 09/2025) UCL PI and WP leader for *MEDiate - Multi-hazard and risk-informed system for Enhanced local and regional Disaster risk management*, funded by the European Commission, HORIZON-CL3-2021-DRS-01-03 (**€5M**, €457k to UCL).

07/2022 - present PI/Supervisor for *MultiVERSE - Multi-hazard Vulnerability Assessment of Structures for Resilience Enhancement*, funded by the European Commission, HORIZON-MSCA-2021-PF-01-01/Marie Curie Individual Fellowships (Dr Eyitayo Opabola) (**€237k**).

09/2019 - present Co-I and work package (WP) leader for *Fostering Resilient Recovery in Displaced Communities via School-based Hubs*, funded by UKRI Global Challenges Research Fund (GCRF), Equitable Resilience Programme, (**£1M**).

03/2019 - present UCL PI (since April 2022), Risk Working Group (RWG) Lead (since June 2020), and WP leader for *GCRF Multi-hazard Urban Disaster Risk Transitions Hub*, funded by UKRI GCRF, Interdisciplinary Research Hubs, (**£20M**; £1.5M to UCL).

03/2019 - 05/2022 UCL PI and WP leader for *TURNkey - Towards more Earthquake-resilient Urban Societies through a Multi-sensor-based Information System enabling Earthquake Forecasting, Early Warning and Rapid Response actions*, funded by the European Commission, H2020-SC5-2018-2 (**€8M**, €505k to UCL).

11/2019 - 10/2021 PI/Supervisor for *MULTIRES - MULTI-level framework to enhance seismic RESilience of RC buildings*, funded by the European Commission, H2020- MSCA-IF-2018/Marie Curie Individual Fellowships (Dr Roberto Gentile) (**€213k**).

03/2019 - 08/2020 PI for *CHeRiSH: Cultural Heritage Resilience & Sustainability to multiple Hazards*, funded by the British Council, Newton Fund Institutional Links (**£150k**, £100k to UCL).

01/2019 - 07/2019 PI for *i-RESIST: Increasing REsilience of Schools in Indonesia to earthquake Shaking and Tsunami*, funded by Research England, GCRF-UCL Small Grants (**£100k**).

04/2018 - 09/2019 PI for *INSPIRE: Indonesia School Programme to Increase Resilience*, funded by the British Council, Newton Fund Institutional Links (**£120k**, £100k to UCL).

01/2017 - 09/2017 Co-I and Tasks Leader (*Safer Schools and Healthcare*) for *Increasing Resilience to Environmental Hazards in Border Conflict Zone*, funded by NERC-AHRC-ESRC GCRF, Building Resilience Programme (**£170k**).

04/2017 - 03/2019 Co-I for *PRISMH: Philippines Resilience of Schools to Multi-Hazard*, funded by the British Council, Newton Fund Institutional Links (**£270k**, £120k to UCL).

08/2016 - 03/2017 PI for *SCOSSO: Safer Communities thrOugh Safer SchOols*, funded by EPSRC, GCRF-UCL Small Grants (**£105k**).

Teaching Summary, and Institutional Citizenship

*My teaching at UCL is highly regarded and popular, as proven by multiple nominations in many different categories of the **UCLU Student Choice Awards** each year. Over the past six years, I have developed, coordinated, and contributed to several modules, spanning various formats. I have created innovative enhancements to the UCL earthquake engineering and risk modelling curricula, including an industrial seminar series, a field trip in earthquake-affected areas, and networking events involving alumni. I have developed ground-breaking course components and CPD courses in engineering seismology, structural reliability, and performance-based earthquake engineering (in collaboration with USA peers from Stanford and the University of California, Davis). During 2014-2019, I was the Degree Programme Director for the MSc in Earthquake Engineering with Disaster Management (EEDM). This course trains about 15-20 students per year, with graduates securing jobs in research, industry, the UN, and NGOs. The Postgraduate Taught Experience Survey (PTES), which looks at key areas such as teaching and learning, engagement, assessment and feedback, organisation and management, and skills development, has been conducted at UCL since 2015-16. In each year of my directorship, the EEDM MSc has registered a satisfaction rate of almost 100% in all the key areas of this survey, including programme management and organisation. My management of the EEDM course and my teaching approach have been cited several*

times as examples of excellent practice in the PTES, particularly by students in the other MSc programmes across CEGE. The EEDM programme has doubled its number of students during the past few years; it is now larger than similar MSc programmes in the UK and abroad. Based on this successful experience, I was appointed as the Director of Postgraduate Taught Studies in CEGE in 2020; in this role, I have reviewed our current MSc offer, leading innovative changes to our curricula. I am also a key member of the CEGE Connected Learning Task Force (overseeing its postgraduate teaching activities) to enable UCL to operate effectively during and after the COVID-19 pandemic and offer the same student support/high-quality education as before.

@ **UCL**

2018 - present	Coordinator and contributor (50%) for the module **IRDR0008: Catastrophe Risk Modelling** (15 Credits), Earthquake Engineering with Disaster Management MSc/Risk and Disaster Science MSc/Risk Disaster and Resilience MSc/Engineering for International Development MSc (about 40 students/year).
2016 - present:	Coordinator and contributor (100%) for the module **CEGE0032: Introduction to Seismic Design of Structures** (15 Credits), Earthquake Engineering with Disaster Management MSc/ Civil Engineering MSc/MEng (about 40 students/year).
2015 - 2016	Contributor (40%) for the module **CEGEG090/CEGEM090: Advanced Structural Analysis/Structural Reliability** component (15 Credits), Civil Engineering MSc/MEng (80 students/year).
2014 - present	Contributor for the modules **CEGE0061: Advanced Seismic Design of Structures** (6 hours), **CEGEG022/CEGEM022: Seismic Risk Assessment** (6 hours), **CEGEG030/CEGEM030: Natural Environmental Disasters** (4 hours), **GEOLGG09/ GEOLM002: Earthquake Seismology & Earthquake Hazard** (4 hours), Department of Civil, Environmental & Geomatic Engineering/Department of Earth Sciences/Institute for Risk & Disaster Reduction.
2014 - 2016	Coordinator and contributor (60%) for the module **CEGEG026: Engineering Seismology & Earthquake Geotechnics** (15 Credits), Earthquake Engineering with Disaster Management MSc/Geophysics MSc (about 15 students/year).
2014 - present	Supervisor for **GEOLGR97: Risk, Disaster and Resilience MSc Independent Project** (60 credits), Institute for Risk & Disaster Reduction (1-2 students/year).
2014 - present	Supervisor for **CEGE0049: MSc Research Project** (60 credits), Department of Civil, Environmental & Geomatic Engineering (4-6 students/year).
2014 - present	Supervisor of visiting students at UCL for MSc Research Project at the University of Naples Federico II, Italy; Second University of Naples, Italy; Beijing Jiaotong University; University of Perugia, Italy; University of Rome La Sapienza, Italy; Politecnico di Milano, Italy; Politecnico di Bari, Italy; IUSS Pavia, Italy.

@ **Scuola Universitaria Superiore (IUSS) Pavia**

2021 - present	Coordinator and contributor (100%) for the module **SST08: Reliability, Risk and Resilience Modelling** (25 hours), Science, Technology and Society Undergraduate Programmes (about 15 students/year).
2021 - present	Coordinator and contributor (100%) for the module **Structural Reliability** (20 hours), Understanding and Managing Extremes (UME) PhD programme (about 15 students/year).

Others:

2014 - present	**MPhil/PhD Internal Examiner** at UCL (7 students) and **PhD External Examiner** at the University of Nottingham, UK (1 student); the University of Strathclyde, UK (1 student); Politecnico di Milano, Italy (1 student); Imperial College London, UK (2 students); City, University of London, UK (1 student); the University of Surrey, UK (1 student); the University of Bristol, UK (2 students); Scuola Universitaria Superiore IUSS, Pavia, Italy (Chair of the External Examiner Panel for the P*hD Programme in Understanding and Managing Extremes*, ciclo XXX e XXXI); the University of Porto, Portugal (1 student); Heriot-Watt University, UK (1 student); Warwick University, UK (1 student); the University of Canterbury, New Zealand (1 student); the University of Aberdeen, UK (1 student).
05/2017	Co-organizer and lecturer for the one-week short course on **Probabilistic Seismic Risk Assessment** at the Pontificia Universidad Católica del Perú (PUCP), Lima, Peru.
05/2015	Co-organizer and contributor for the one-day short-course (Continuing professional development) on **Performance-Based Earthquake Engineering Enabled by Advances in Structural Simulation** in collaboration with Stanford University and University of California, Davis, London, UK.
11/2014	Contributor for the three-day short-course (Continuing professional development) on **Global Earthquake Model - Physical Vulnerability** in collaboration with the Global Earthquake Model (GEM) Foundation and the Society for Earthquake and Civil Engineering Dynamics (SECED), London, UK.

Supervision

*I have grown the CRE-Lab into a strong and sustainable research group that currently comprises **five postdoctoral research fellows** (including a Marie Curie Individual Fellow and recent graduates from world-leading centers of excellence in earthquake engineering, such as Stanford University, USA, and the University of Illinois Urbana-Champaign, USA); and **eight PhD students as the first supervisor**, who are all funded by competitive studentships (e.g., by the China Scholarship Council, and UK Research and Innovation) and work on different aspects of CRE. I have successfully completed the supervision of **seven PhD students at UCL**, one PhD student at the University of California, Davis (USA), one PhD student at Newcastle University (UK), one PhD student at Scuola Superiore Studi Pavia IUSS (Italy); four research assistants and two postdoctoral research associates in the UK. Drawing upon their research skills, they all now work either in the (re)insurance/catastrophe risk modeling industry or as academics in the UK/USA (including UCL).*

Full detailed list at: https://www.carminegalassoresearch.com/team

Journal Publication (Supervised students are underlined; **[OA]** = Open Access)

*I have authored **more than 200 journal and conference papers** that are well cited in the field, and I received various prizes for some of these. I have some **85 published/accepted** and ten submitted papers in the **highest-ranked ISI journals in the field**, with **>2700 total citations in Google Scholar (h-index = 24) in less than ten years from my PhD degree**.*

1. Otarola K., Fayaz J., **Galasso C.**, *Fragility and vulnerability analysis of deteriorating ordinary bridges using simulated ground-motion sequences*, Earthquake Engineering & Structural Dynamics, https://doi.org/10.1002/eqe.3720 (in press). **[OA]**

2. Iacoletti S., Cremen G., **Galasso C.**, *Integrating long and short-term time dependencies in simulation-based seismic hazard assessment approach*, AGU Earth and Space Science, https://doi.org/10.1029/2022EA002253 (in press). **[OA]**

3. Opabola E., **Galasso C.**, Rossetto T., Nurdin S., Idris Y., Aljawhari K., Rusydy I., *A Mixed-Mode Data Collection Approach for Building Inventory Development: Application to School Buildings in Central Sulawesi*, Indonesia, Earthquake Spectra, https://doi.org/10.1177/87552930221110256 (in press). **[OA]**

4. Pescaroli G., Velazquez O., Alcántara-Ayala I., **Galasso C.**, *Integrating earthquake early warnings into business continuity and organisational resilience: lessons learned from Mexico City*, Disasters, https://doi.org/10.1111/disa.12551 (in press). **[OA]**

5. Fayaz J., **Galasso C.**, *A Generalized Ground Motion Model for Consistent Mainshock-Aftershock Ground-Motion Intensity Measures using Successive Recurrent Neural Networks*, Bulletin of Earthquake Engineering, https://doi.org/10.1007/s10518-022-01432-w (in press). **[OA]**

6. Fayaz J., **Galasso C.**, *A deep neural network framework for real-time on-site estimation of acceleration response spectra of seismic ground motions*, Computer-aided Civil and Infrastructure Engineering, https://doi.org/10.1177/10.1111/mice.12830 (in press). **[OA]**

7. Aljawhari K., Gentile R., **Galasso C.**, *A fragility-oriented approach for seismic retrofit design*, Earthquake Spectra, https://doi.org/10.1177/87552930221078324 (in press). **[OA]**

8. Tubaldi E., Turchetti F., Ozer E., Fayaz J., Gehl P., **Galasso C.**, *A Bayesian network-based probabilistic framework for updating aftershock risk of bridges*, Earthquake Engineering & Structural Dynamics, 51(10): 2496-2519, https://doi.org/10.1002/eqe.3698 (August 2022). **[OA]**

9. Gentile R., Pampanin S., **Galasso C.**, *A computational framework for selecting the optimal combination of seismic retrofit and insurance coverage*, Computer-aided Civil and Infrastructure Engineering, 37(9): 956-975, https://doi.org/10.1111/mice.12778 (July 2022).

10. Opabola E., **Galasso C.**, *Multicriteria decision making for selecting an optimal survey approach for large building portfolios*, International Journal of Disaster Risk Reduction, 76: 102985, https://doi.org/10.1016/j.ijdrr.2022.102985 (June 2022).

11. Hassan A., Song B., **Galasso C.**, Kanvinde A., *Seismic Performance of Dissipative Column Base Plate Connections With Ductile Anchor Rods*, ASCE Journal of Structural Engineering, 148(5): 04022028, https://doi.org/10.1061/(ASCE)ST.1943-541X.0003298 (May 2022).

12. Mesta C., Cremen G., **Galasso C.**, *Urban growth modelling and social vulnerability assessment for a hazardous Kathmandu Valley*, Scientific Reports, 12: 6152, https://doi.org/10.1038/s41598-022-09347-x (April 2022). **[OA]**

13. Cremen G., **Galasso C.**, McCloskey J., *Modelling and Quantifying Tomorrow's Risks from Natural Hazards*, Science of the Total Environment, 817: 152552, https://doi.org/10.1016/j.scitotenv.2021.152552 (April 2022). **[OA]**

14. Cremen G., **Galasso C.**, McCloskey J., *A simulation-based framework for earthquake risk-informed and people-centred decision making on future urban planning*, AGU Earth's Future, 10(1): e2021EF002388, https://doi.org/10.1029/2021EF002388 (January 2022). **[OA]**

15. Iacoletti S., Cremen G., **Galasso C.**, *Validation of the Epidemic-Type Aftershock Sequence (ETAS) models for simulation-based seismic hazard assessments*, Seismological Research Letters, 93 (3): 1601–1618, https://doi.org/10.1785/0220210134 (May 2022).

16. Cremen G., **Galasso C.**, Zuccolo E., *Investigating the potential effectiveness of earthquake early warning across Europe*, Nature Communications, 13: 639, https://doi.org/10.1038/s41467-021-27807-2 (February 2022). **[OA]**

17. Wilkie D., **Galasso C.**, *A Bayesian model for wind farm capacity factor*, Energy Conversion and Management, 252: 114950, https://doi.org/10.1016/j.enconman.2021.114950 (January 2022). **[OA]**

18. Gentile R., **Galasso C.**, *Surrogate probabilistic seismic demand modelling of inelastic SDoF systems for efficient earthquake risk applications*, Earthquake Engineering & Structural Dynamics, 51(2): 492-511, https://doi.org/10.1002/eqe.3576 (February 2022). **[OA]**

19. Cremen G., Bozzoni F., Pistorio S., **Galasso C.**, *Developing a risk-informed decision-support system for earthquake early warning at a critical seaport*, Reliability Engineering & System Safety, 218(A): 108035, https://doi.org/10.1016/j.ress.2021.108035 (February 2022).

20. Sevieri G., Gentile R., **Galasso C.**, *A multi-fidelity Bayesian framework for robust seismic fragility assessment*, Earthquake Engineering & Structural Dynamics, 50(15): 4199– 4219 https://doi.org/10.1002/eqe.3552 (December 2021).

21. Aljawhari K., Gentile R., Freddi F., **Galasso C.**, *Effects of Ground-motion Sequences on the Vulnerability of Case-Study Reinforced Concrete Frames*, Bulletin of Earthquake Engineering, 19(15): 6329–6359, https://doi.org/10.1007/s10518-020-01006-8 (December 2021). **[OA]**

22. Gentile R., **Galasso C.**, *Accounting for directivity-induced pulse-like ground motions in building portfolio loss assessment*, Bulletin of Earthquake Engineering, 19(15): 6303–6328, https://doi.org/10.1007/s10518-020-00950-9 (December 2021). **[OA]**

23. Nettis A., Gentile R., Raffaele D., Uva G., **Galasso C.**, *Cloud Capacity Spectrum Method: Accounting for Record-to-Record Variability in Fragility Analysis Using Nonlinear Static Procedures*, Soil Dynamics and Earthquake Engineering, 150: 106829, https://doi.org/10.1016/j.soildyn.2021.106829 (November 2021).

24. Cremen G., Velazquez O., Orihuela Gonzales B., **Galasso C.**, *Predicting approximate seismic responses in multistory buildings from real-time earthquake source information, for earthquake early warning applications*, Bulletin of Earthquake Engineering, 19(12): 4865–4885, https://doi.org/10.1007/s10518-021-01088-y (September 2012). **[OA]**

25. Iacoletti S., Cremen G., **Galasso C.**, *Advancements in multi-rupture time-dependent seismic hazard modeling, including fault interaction,* Earth-Science Reviews, 220: 103650, https://doi.org/10.1016/j.earscirev.2021.103650 (September 2021).

26. Zuccolo E., Cremen G., **Galasso C.**, *Comparing the performance of regional earthquake early warning algorithms in Europe*, Frontiers in Earth Science/Geohazards and Georisks, 9: 686272, https://doi.org/10.3389/feart.2021.686272 (July 2021). **[OA]**

27. Cremen G., Zuccolo E., **Galasso C.**, *Accuracy and Uncertainty Analysis of Selected Methodological Approaches to Earthquake Early Warning in Europe*, Seismological Research Letters, 92(4): 2321–2332, https://doi.org/10.1785/0220200414 (July 2021).

28. Freddi F., **Galasso C.**, Cremen G., Dall'Asta A., Di Sarno L., Giaralis A., Gutiérrez-Urzúa F., Málaga-Chuquitaype C., Mitoulis S., Petrone C., Sextos A., Sousa L., Tarbali K., Tubaldi E., Wardman J., Woo G., *Innovations in earthquake risk reduction for resilience: recent advances and challenges*, International Journal of Disaster Risk Reduction, 60: 102267, https://doi.org/10.1016/j.ijdrr.2021.102267 (June 2021). **[OA]**

29. **Galasso C.**, McCloskey J., Pelling M., Hope M., Bean C., Cremen G., Guragain R., Hancilar U., Menoscal J., Mwang'a K., Phillips J., Rush D., Sinclair H., *Risk-Based, Pro-Poor Urban Design and*

Planning for Tomorrow's Cities, International Journal of Disaster Risk Reduction, 58: 102158, https://doi.org/10.1016/j.ijdrr.2021.102158 (May 2021). **[OA]**

30. Gentile R., **Galasso C.**, *Simplicity versus accuracy trade-off in estimating seismic fragility of existing reinforced concrete buildings*, Soil Dynamics and Earthquake Engineering, 144: 106678, https://doi.org/10.1016/j.soildyn.2021.106678 (May 2021).

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Conference Proceedings/Abstracts (>140)

Full detailed list at: https://www.carminegalassoresearch.com/conference-proceedings

Software

1. Developer of **SCOSSO App**, https://play.google.com/store/apps/
2. Developer of **REXEL,** http://www.reluis.it/
3. Developer of **REXELite,** http://itaca.mi.ingv.it
4. Developer of **REXEL-DISP,** http://www.reluis.it/

Curriculum Vitae et Studiorum

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Education

Sept. 2007 – Dec. 2010 PhD in Earthquake Engineering and Engineering Seismology, Istituto Universitario di Studi Superiori IUSS – ROSE School (Centre for Post-Graduate Training and Research in Earthquake Engineering and Engineering Seismology), Pavia, Italy.
Thesis: "*The earthquake source in numerical modeling of seismic wave propagation in heterogeneous Earth media*".

Sept. 2006 – May 2008 Postgraduate MSc degree in Engineering Seismology within the Erasmus Mundus program MEEES (Masters in Earthquake Engineering and Engineering Seismology) jointly awarded by Istituto Universitario di Studi Superiori IUSS di Pavia, Italy, and the University of Grenoble Joseph Fourier, France, and University of Patras, Greece.
Thesis: "*Earthquake-induced transient ground strains and rotations from dense seismic arrays*".

Oct. 2004 – July 2006 MSc degree in Environmental and Land Planning Engineering, Politecnico di Milano, Italy. Mark: 110/110 *cum laude*.

Oct. 2001 – July 2004 BSc degree in Environmental and Land Planning Engineering, Politecnico di Milano, Italy. Mark: 110/110 *cum laude*.

July, 2001 High school diploma (scientific oriented), Liceo Scientifico "R. Donatelli – B. Pascal", Milano, Italy. Mark: 100/100.

National Qualifications

Sept. 2018 National Scientific Qualification as Associate Professor in Structural Design 08/B3 (*Tecnica delle Costruzioni*).

Oct. 2013 National Professional Qualification as Civil and Environmental Engineer.

Academic Positions

May 2020 – present Associate Professor of Structural Design (ICAR/09), Department of Civil and Environmental Engineering, Politecnico di Milano.

Dec. 2014 – Nov. 2015 Postdoctoral Fellow at the Department of Civil Engineering, Aristotle University of Thessaloniki, in the framework of the European Project STREST "*Harmonised approach to stress tests for critical infrastructures against natural hazards*", Seventh Framework Programme EU FP7/2007-2013.

Sept. 2012 – Nov. 2013 Postdoctoral Fellow at the Department of Civil and Environmental Engineering (DICA), Politecnico di Milano, in the framework of the 2012–2014 MRPM I Project "*Numerical Approaches for Earthquake Ground Shaking Scenarios in Large Urban Areas*", agreement between Politecnico di Milano and the re-insurance company Munich RE.

Sept. 2010 – Aug. 2012 Postdoctoral Fellow at the Department of Structural Engineering, Politecnico di Milano, in the framework of the 2010–2013 DPC-RELUIS Project "*Development of displacement-based approaches for vulnerability assessment*".

Professional Positions

Apr. 2016 – Oct. 2016 Senior Engineer, Civil and Geotechnical Engineering Division, Betti S.p.A., Terni, Italy.

Nov. 2013 – Nov. 2014 Senior Engineer, Geosciences Division, GeoHazard Group, D'Appolonia S.p.A., Genova, Italy.

Research Positions Abroad

Dec. 2014 – Nov. 2015 Post-Doc at the Department of Civil Engineering, Aristotle University of Thessaloniki.

Sept. 2007 – Jan. 2008 PhD student at the Department of Engineering, Universidad Nacional Autónoma de México (UNAM).

Sept. 2006 – Feb. 2007 MSc student (program MEEES) at the University of Grenoble Joseph Fourier (France).

Awards

- *Best paper prize* for the article "*Spatial variability of near-source seismic ground motion with respect to different distance metrics, with special emphasis on May 29 2012 Po Plain Earthquake, Italy*", by K. Hashemi, I. Mazzieri, R. Paolucci, and C. Smerzini, awarded at the 7th International Conference on Seismology and Earthquake Engineering, Tehran, Iran, 2015.
- *Carlo Maddalena Onlus* prize for the best thesis in Civil, Environmental and Land Planning Engineering at Politecnico di Milano during the academic year 2005–2006.

Teaching Activity

Lecturer

Since A.Y. 2020/2021

- Buildings in Seismic Areas (6 ECTS, in English), Master Degree Program in Building and Architectural Engineering, School of Architecture Urban Planning Construction Engineering, Politecnico di Milano.

Since A.Y. 2018/2019

- Earthquake Engineering Analysis - Applications of Structural Dynamics to Earthquake Engineering (5 ECTS, Integrated Course, in English), Master Degree Program in Civil Engineering - Earthquake Engineering, School of Civil, Environmental and Land Management Engineering, Politecnico di Milano.

Since A.Y. 2017/2018

- Risk-Based Design (4 ECTS, in English), Master Degree Program in Building Architecture, School of Architecture Urban Planning Construction Engineering, Politecnico di Milano.

From A.Y. 2017/2018 to 2019/2020

- Structural Design (4 ECTS, in English), Master Degree Program in Architecture and Urban Design, School of Architecture Urban Planning Construction Engineering, Politecnico di Milano.

Since A.Y. 2012/2013

- Elementi di Sismologia Applicata all'Ingegneria (Engineering Seismology). Master (Level II) Degree Program in "*Design of seismic sustainable structures in construction works*", Master School Fratelli Pesenti, Politecnico di Milano.

June 26 – 30, 2017

- Seismic wave propagation: theory and numerical modelling, Summer School "SeisMath 2017 – Mathematical Models in Seismology" for PhD and MSc students in Applied Mathematics. Gran Sasso Science Institute – G.S.S.I., L'Aquila, Italy.

Research Projects

Principal Investigator / Task Leader

- EU Project SITE3D "*Seismic site effects in sedimentary basins from 3D physics-based numerical modeling*". Funded by the European Commission within the Project SERA - Seismology and Earthquake Engineering Research Infrastructure Alliance for Europe, Call H2020-INFRAIA-2016-1. Role: Principal Investigator. Grant: access to EUROSEISTEST facility. Period: Oct. 2018 – April 2020.
- EU Project URBASIS "*New Challenges for Urban Engineering Seismology*". Funded by the European Commission within the Marie Slodowska-Curie Actions, Innovative Training Networks (ITN), Call: H2020-MSCA-ITN-2018. Role: supervision of one doctoral thesis, co-supervision of one doctoral thesis. Grant: 4'066'114 Euro. Period: Nov. 2018 – Nov. 2022.
- Project "*Data Driven Study on Seismic Structural Features of Groningen Ground Motions*". Funded by the Ministry of Economic Affairs and Climate Policy of Netherlands. Role: task leader. Period: Sept. 2018 – Dec. 2019. Grant: 106'800 Euro.
- Project MRPM II "*Integrating Physics-Based Scenarios into PSHA in Large Urban Areas – Probabilistic Seismic Hazard enhanced*".Funded by the re-insurance industry Munich Re, Germany, under the agreement with Politecnico di Milano – Department of Civil and Environmental Engineering (DICA) and Laboratory for Modeling and Scientific Computing (MOX). Role: task leader. Period: Apr. 2015 – Mar. 2017. Grant: 150.000 Euro.
- Project MRPM I "*Numerical Approaches for Earthquake Ground Shaking Scenarios in Large Urban Areas*". Funded by the re-insurance industry Munich Re, Germany, under the agreement with Politecnico di Milano – Department of Civil and Environmental Engineering (DICA) and Laboratory for Modeling and Scientific Computing (MOX). Role: Task Leader. Period: Jan. 2012 – Dec. 2013. Grant: 150.000 Euro.

HPC Projects

- ISCRA B Project INDQUAKE "*3D numerical simulation of INDuceed earthQUAKEs in the Groningen gas field*". Funded by CINECA, Italy. Role: Principal Investigator. Period: Apr. 2020 – Apr 2021. Grant: 500.000 core-hours on Marconi M100 cluster.
- ISCRA C Project SEIGRON "*3D numerical simulation of SEIsmic wave propagation in the GRONingen gas field for hazard assessment of induced seismicity*". Funded by CINECA, Italy. Role: Principal Investigator. Period: Oct. 2018 – July 2019. Grant: 37.500 core-hours on Marconi cluster.
- ISCRA C Project EQK-NOR "*3D physics-based numerical simulations of earthquake ground motion in Norcia basin during the October 2016 seismic sequence in Central Italy*". Funded by CINECA, Italy. Role: Principal Investigator. Period: Nov. 2017 – Aug. 2018. Grant: 89.600 core-hours on Marconi cluster.

- ISCRA B Project URBSHAKE "*Enhanced seismic hazard assessment at URBan scale based on physics-based high-performance broadband ground SHAKing scEnarios*". Funded by CINECA, Italy. Role: Principal Investigator. Period: July 2016 – July 2017. Grant: 75.467 cores-hours on Marconi cluster.
- LISA Project PBS-CHI "*broadband Physics-Based earthquake Scenarios for enhanced probabilistic seismic hazard analysis at urban scale: application to the areas of Santiago, CHIle, and Beijing, CHIn*". Funded by CINECA, Italy. Role: Principal Investigator. Period: July 2016 – July 2017. Grant: 51.200 on Marconi cluster.

Participant

- DPC-RELUIS Project WP4 "*MAppe di Rischio e Scenari di danno sismico*". Funded by the Department of Civil Protection (DPC) under the 2022–2024 DPC-RELUIS agreement. Role: investigator. Period: 2022–2024.
- DPC-RELUIS Project WP18 "*Contributi normativi relativi ad Azione Sismica*". Funded by the Department of Civil Protection (DPC) under the 2022–2024 DPC-RELUIS agreement. Role: investigator. Period: 2022–2024.
- SERICE Project "*Seismic risk in Iceland*". Funded by the Icelandic Research Fund 2021 Grant of Excellence, Iceland. Role: investigator. Period: Sept 2021 – Sept 2024.
- POLIMI-swissnuclear Project "*Development of advanced physics-based numerical approaches for earthquake ground motion prediction*" within the SIGMA 2 "*Seismic Ground Motion Assessment*" research programme. Funded by swissnuclear, Switzerland. Role: investigator. Period: May 2017 – May 2022. Grant: 250.000 Euro.
- DPC-RELUIS Project WP4 "*MAppe di Rischio e Scenari di danno sismico*". Funded by the Department of Civil Protection (DPC) under the 2019–2021 DPC-RELUIS agreement. Role: investigator. Period: 2019 – 2021.
- DPC-RELUIS Project WP18 "*Contributi normativi relativi ad Azione Sismica*". Funded by the Department of Civil Protection (DPC) under the 2019–2021 DPC-RELUIS agreement. Role: investigator. Period: 2019 – 2021.
- DPC-RELUIS Special Project RS2 "*Simulations of earthquakes: near-source effects*". Funded by the Department of Civil Protection (DPC) under the 2014–2018 DPC-RELUIS agreement. Role: investigator. Period: 2014 – 2017.
- STREST "*Harmonised approach to stress tests for critical infrastructures against natural hazards*". Funded by the European Union under the Seventh Framework Programme EU FP7/2007-2013, grant agreement no. 603389. Role: investigator. Period: Oct. 2013 – Sept. 2016.
- Seismological Project S2 "*Constraining Observations into Seismic Hazard*". Funded by the Department of Civil Protection (DPC) under the 2012 DPC-INGV agreement. Role: investigator. Period: 2012 – 2013.
- SIGMA "*Seismic Ground Motion Assessment*" with application to the Italian context. Funded by ENEL, Italy. Role: investigator. Period: 2012 – 2013.
- DPC-RELUIS "*Development of displacement-based approaches for vulnerability assessment*" (RELUIS Line 2). Funded by the Department of Civil Protection (DPC) under the 2010–2013 DPC-RELUIS agreement. Role: investigator. Period: 2010 – 2013.
- Seismological Project S4 "*Italian Strong Ground Motion Database*". Funded by the Department of Civil Protection (DPC) under the 2007–2009 DPC-INGV agreement. Role: investigator. Period: 2008 – 2010.
- Seismological Project S2 "*Development of a dynamical model for seismic hazard assessment at national scale*". Funded by the Department of Civil Protection (DPC) under the 2007–2009 DPC-INGV agreement. Role: investigator. Period: 2008 – 2010.
- PRIN "*Prediction of strong motion and generation of shaking maps in the near-fault region of an earthquake*". Funded by the Ministry of Education, University and Research (MIUR). Role: investigator. Period: 2008 – 2010.
- DPC-RELUIS "*Development of displacement-based approaches for design and vulnerability assessment – Shallow and deep foundations*" (RELUIS Line 4), Research Project no. 6, sub-project

"*Underground structures: rock tunnels and caverns*". Funded by the Department of Civil Protection (DPC) under the 2005–2008 DPC-RELUIS agreement. Role: investigator. Period: 2005 – 2008.

HPC Projects

- ISCRA B Project PBES4HAS "*Physics-based earthquake scenarios for hazard assessment in densely urbanized areas*". Funded by CINECA, Italy. Role: investigator. Period: May 2015 – May 2016. Grant: 8 millions of core hours on FERMI cluster, CINECA, Italy.
- PRACE A HPC Project DNS4RISC "*Deterministic Numerical ground motion Simulations for RIsk hazard in Santiago de Chile*". Funded by PRACE "*Partnership for Advanced Computing in Europe*". Period: Sept. 2013 – Sept. 2014. Role: investigator. Grant: 40 millions of core hours on FERMI cluster, CINECA, Italy.
- LISA Project SISMA-URB "*Ground shaking scenarios for advanced seismic hazard assessment analyses in urban areas by a high-performance computational code*". Funded by CINECA and regione Lombardia, Italy, under the 2012–2014 LISA Initiative. Role: investigator. Period: May 2013 – Apr. 2014. Grant: 5 millions of core hours on FERMI cluster, CINECA, Italy.
- ISCRA C HPC project MAGNITUD "*Massively pArallel Numerical sImulaTions of mUlti-scale seismic events*". Funded by CINECA, Italy. Period: 2012 – 2013. Role: investigator. Grant: 340.000 core hours on FERMI cluster, CINECA, Italy.
- LISA Project SINIS "*High-performance numerical simulations for the evaluation of seismic input in complex geomorphological conditions*". Funded by CILEA and regione Lombardia, Italy under the 2010-2012 LISA Initiative. Role: investigator. Period: Sept. 2011 – Aug. 2012. Grant: 400.000 core hours on Lagrange cluster, CILEA, Italy.

National and International Research Collaborations

Research Institutions

- National Institute of Geophysics and Vulcanology – INGV, Milano, Italy.
- National Institute of Oceanography and Applied Geophysics – OGS, Trieste, Italy.
- University School for Advanced Studies – IUSS, Pavia, Italy.
- University of Pavia, Italy.
- Italian Department of Civil Protection, Italy.
- CentraleSupélec Paris-Saclay University, Paris
- University College London – UCL, London, United Kingdom.
- University of Strathclyde, Glasgow, Scotland.
- Aristotle University of Thessaloniki, Thessaloniki, Greece.
- University of Iceland, Reykjavík, Iceland.
- German Research Centre for Geosciences – GFZ, Potsdam, Germany.
- University of Grenoble, Joseph Fourier
- Technical University of Civil Engineering, Bucharest.

Industry

- Re-insurance company Munich RE, Munich, Germany
- swissnuclear – Association of the Swiss nuclear power station operators, Switzerland.
- EDF – French electric utility company, France.
- Engineering Consulting Company Seister, France.
- Engineering Consulting Group RINA – Geosciences Division, Italy.

Publications

Peer-Reviewed Journal Papers

[J1] V. Manfredi, A. Masi, A.G. Özcebe, R. Paolucci, and **C. Smerzini** (2022) Selection and spectral matching of recorded ground motions for seismic fragility analyses. *Bulletin of Earthquake Engineering*, https://doi.org/10.1007/s10518-022-01393-0

[J2] F. Di Michele, J. May, D. Pera, V. Kastelic, M. Carafa, **C. Smerzini** I. Mazzieri, B. Rubino, P. F. Antonietti, A. Quarteroni, R. Aloisio, and P. Marcati (2022) Spectral elements numerical simulation of the 2009 L'Aquila earthquake on a detailed reconstructed domain. *Geophysical Journal International*, 230(1): 29–49.

[J3] F. Ramadan, **C. Smerzini**, G. Lanzano, F. Pacor (2021) An empirical model for the vertical-to-horizontal spectral ratios for Italy. *Earthquake Engineering and Structural Dynamics*, 50(15): 4121 – 4141.

[J4] R. Paolucci, **C.Smerzini**, and M. Vanini (2021) BB-SPEEDset: a validated dataset of broadband near-source earthquake ground motions from 3D physics-based numerical simulations. *Bulletin of Seismological Society of America*, https://doi.org/10.1785/0120210089.

[J5] E. Schiappapietra, and **C.Smerzini** (2021) Spatial correlation of earthquake ground motion in Norcia (Central Italy) from broadband physics-based simulations. *Bulletin of Earthquake Engineering*, https://doi.org/10.1007/s10518-021-01160-7

[J6] M. Infantino, **C.Smerzini**, and J. Lin (2021) Spatial correlation of spectral accelerations from broadband physics-based numerical simulations. *Earthquake Engineering and Structural Dynamics*, 50(10): 2575–2594.

[J7] R. Rodríguez-Plata, A. G. Özcebe, **C.Smerzini**, and C. G. Lai (2021) Aggravation factors for 2D site effects in sedimentary basins: the case of Norcia, Central Italy. *Soil Dynamics and Earthquake Engineering*, 149: 106854, https://doi.org/10.1016/j.soildyn.2021.106854.

[J8] R. Paolucci, I. Mazzieri, G. Piunno, **C.Smerzini**, M. Vanini, and A.G. Özcebe (2021) Earthquake ground motion modelling of induced seismicity in the Groningen gas field, *Earthquake Engineering and Structural Dynamics*, 50(1): 135-154.

[J9] P. F. Antonietti, I. Mazzieri, L. Melas, R. Paolucci, A. Quarteroni, **C.Smerzini**, and M. Stupazzini (2020) Three-dimensional physics-based earthquake ground motion simulations for seismic risk assessment in densely populated urban areas. *Mathematics in Engineering*, 3(2): 1-31.

[J10] A. G. Özcebe, **C.Smerzini**, and V. Bhanu (2020) Insights into the effect of spatial variability of recorded earthquake ground motion on the response of a bridge structure. *Journal of Earthquake Engineering*, 24(6): 920–946.

[J11] R. Guidotti, M. Stupazzini, **C.Smerzini**, and R. Paolucci (2019) Comment on "Broadband ground-motion simulation of the 2011 Mw 6.2 Christchurch, new Zealand, Earthquake" by H. N. T. Razafindrakoto, B. A. Bradley, and R. W. Graves, *Bulletin of the Seismological Society of America*, 109(5): 2138.

[J12] R. Paolucci, F. Gatti, M. Infantino, **C.Smerzini**, A.G. Özcebe, and M. Stupazzini (2018) Broad-band ground motions from 3D physics-based numerical simulations using Artificial Neural Networks. *Bulletin of Seismological Society of America*, 103(3): 1272-1286.

[J13] R. Paolucci and **C.Smerzini** (2018) Empirical evaluation of peak ground velocity and displacement as a function of elastic spectral ordinates. *Earthquake Engineering and Structural Dynamics*, 47(1): 245-255.

[J14] **C.Smerzini** and K. Pitilakis (2018) Seismic risk assessment at urban scale from 3D physics-based numerical modeling: the case of Thessaloniki. *Bulletin of Earthquake Engineering*, 16(7): 2609-2631.

[J15] L. Evangelista, S. del Gaudio, **C.Smerzini**, A. d´Onofrio, G. Festa, I. Iervolino, L. Landolfi, R. Paolucci, A. Santo, and F. Silvestri (2017) Physics-based seismic input for engineering applications: a case study in the Aterno River valley, Central Italy. *Bulletin of Earthquake Engineering*, 15(7):2645–2671.

[J16] **C.Smerzini**, K. Pitilakis, and K. Hashemi (2017) Evaluation of earthquake ground motion and site effects in the Thessaloniki urban area by 3D finite-fault numerical simulations. *Bulletin of Earthquake Engineering*, 15(3):787–812.

[J17] J. R. Abraham, **C.Smerzini**, R. Paolucci, and C. G. Lai (2016) Numerical study on basin-edge effects in the seismic response of the Gubbio valley, Central Italy. *Bulletin of Earthquake Engineering*, 14(6):1437–1459.

[J18] R. Paolucci, I. Mazzieri, and **C.Smerzini** (2015) Anatomy of strong ground motion: near-source records and three-dimensional physics-based numerical simulations of the M_W 6.0 2012 May 29 Po Plain earthquake, Italy. *Geophysical Journal International*, 203(3): 2001–2020.

[J19] **C.Smerzini**, C. Galasso, I. Iervolino, and R. Paolucci (2014) Ground motion record selection based on broadband spectral compatibility. *Earthquake Spectra*, 30(4):1427–1448

[J20] Mazzieri, M. Stupazzini, R. Guidotti, and **C.Smerzini** (2013) SPEED: SPectral Elements in Elastodynamics with Discontinuous Galerkin: a non-conforming approach for 3D multi-scale problems. *International Journal for Numerical Methods in Engineering*, 95(12):991–1010

[J21] **C.Smerzini** and M. Villani (2012) Broadband numerical simulations in complex near-field geological configurations: the case of the 2009 M_W 6.3 L'Aquila earthquake. *Bulletin of the Seismological Society of America*, 102(6):2436–2451

[J22] R. Guidotti, M. Stupazzini, **C.Smerzini**, R. Paolucci, and P. Ramieri (2011) Numerical study on the role of basin geometry and kinematic seismic source in 3D ground motion simulation of the 22 February 2011 M_W 6.2 Christchurch earthquake. *Seismological Research Letters*, 82(6):767–782.

[J23] **C.Smerzini**, R. Paolucci, and M. Stupazzini (2011) Comparison of 3D, 2D and 1D numerical approaches to predict long period earthquake ground motion in the Gubbio plain, Central Italy. *Bulletin of Earthquake Engineering*, 9(6):2007–2029.

[J24] F. Pacor, G. Ameri, D. Bindi, L. Luzi, M. Massa, R. Paolucci, and **C.Smerzini** (2011) Characteristics of strong ground motions from the L'Aquila (M_W = 6.3) earthquake and its strongest aftershocks. *Bollettino di Geofisica Teorica ed Applicata*, 52(3):471–490

[J25] **C.Smerzini**, R. Paolucci, and M. Stupazzini (2009) Experimental and numerical results on earthquake-induced rotational ground motions. *Journal of Earthquake Engineering*, 13(S1):66–82.

[J26] **C.Smerzini**, J. Avilés, R. Paolucci, and F. J. Sánchez-Sesma (2009) Effect of underground cavities on surface earthquake ground motion under SH wave propagation. *Earthquake Engineering and Structural Dynamics*, 38(12):1441–1460.

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[J28] L. Godinho, P. Amado Mendes, A. Tadeu, A. Cadena-Isaza, **C.Smerzini**, F. J. S´anchez-Sesma, R. Madec, and D. Komatitsch (2009) Numerical simulation of ground rotations along 2D topographical profiles under the incidence of elastic plane waves. *Bulletin of the Seismological Society of America*, 99(2B):1147–1161.

[J29] M. Stupazzini, J. de la Puente, **C.Smerzini**, M. Käser, H. Igel, and A. Castellani (2009) Study of rotational ground motion in the near-field region. *Bulletin of the Seismological Society of America*, 99(2B):1271–1286.

[J30] R. Paolucci, and **C.Smerzini** (2008) Earthquake-induced transient ground strains from dense seismic networks. *Earthquake Spectra*, 24(2):453–470.

Conference Proceedings

[C1] **C.Smerzini**, A. Rosti, R. Paolucci, A. Penna, M. Rota (2022) Physics-based ground shaking scenarios for seismic fragility analyses: the case study of the 2009 L'Aquila earthquake, In *Proceedings of the 3rd European Conference on Earthquake Engineering and Seismology*, 4 - 9 September 2022, Bucharest, Romania.

[C2] J. Lin, **C.Smerzini** (2022) Validated physics-based numerical simulations of earthquake ground motion in the Thessaloniki area, In *Proceedings of the 3rd European Conference on Earthquake Engineering and Seismology*, 4 - 9 September 2022, Bucharest, Romania.

[C3] S. Sangaraju, R. Paolucci, **C.Smerzini** (2022) Numerical Coupling of Structural Response and Ground Motion in Multi-scale 3D Physics Based Simulations, In *Proceedings of the 3rd European Conference on Earthquake Engineering and Seismology*, 4 - 9 September 2022, Bucharest, Romania.

[C4] F. Ramadan, G. Lanzano, **C.Smerzini**, F. Pacor, P. Traversa, C. Felicetta (2022) Prediction Models for Vertical Ground Motion for Italy and France, In *Proceedings of the 3rd European Conference on Earthquake Engineering and Seismology*, 4 - 9 September 2022, Bucharest, Romania.

[C5] R. Paolucci, S. Sangaraju, and **C.Smerzini** (2021) Generating broadband ground motions from physics-based numerical simulations using Artificial Neural Networks, In *Proceedings of the 6th IASPEI / IAEE International Symposium: Effects of Surface Geology on Seismic Motion*, 30 August - 1 September 2021

[C6] S. Sangaraju, R. Paolucci, and **C.Smerzini** (2021) 3D Physics-based ground motion simulation of the 2016 Kumamoto earthquakes, In *Proceedings of the 6th IASPEI / IAEE International Symposium: Effects of Surface Geology on Seismic Motion*, 30 August - 1 September 2021

[C7] D. Soler Sandoval, **C.Smerzini**, S. Corciulo, and O. Zanoli (2019) Time domain numerical modelling of offshore wind turbines seismic response. In *Proceedings of the 7th International Conference on Earthquake Geotechnical Engineering*, Rome, 17-20 June 2019

[C8] A. G. Özcebe, **C.Smerzini**, R. Paolucci, H. Pourshayegan, R. Rodríguez Plata, C. G. Lai, E. Zuccolo, F. Bozzoni, and M. Villani (2019) On the comparison of 3D, 2D, and 1D numerical approaches to predict seismic site amplification: the case of Norcia basin during the M6.5 2016 October 30 earthquake. In *Proceedings of the 7th International Conference on Earthquake Geotechnical Engineering*, Rome, 17-20 June 2019

[C9] R. Rodríguez-Plata, **C.Smerzini**, C. G. Lai, E. Zuccolo, A. G. Özcebe, and F. Bozzoni (2019) A comparative study on time domain 1D/2D seismic ground response analysis of Norcia basin during the M6.5 2016 October 30 earthquake. In *Proceedings of the 7th International Conference on Earthquake Geotechnical Engineering*, Rome, 17-20 June 2019

[C10] M. Stupazzini, A. Allmann, M. Infantino, R. Paolucci, **C.Smerzini**, I. Mazzieri, R. Guidotti, and P. Gardoni (2019) Footprint based PSHA: The case of Christchurch, New Zealand. In *Proceedings of the 2019 Pacific Conference on Earthquake Engineering*, Auckland, 4-6 Apr 2019

[C11] O. Odabasi, P. F. Bazzurro, M. Infantino, **C.Smerzini**, and M. Stupazzini (2019) Scenario-based probabilistic seismic performance analysis of an archetypal tall building in Istanbul using real and physics-based synthetic earthquake ground motions. In *Proceedings of the SECED 2019 Conference*, Greenwich, 9-10 Sept. 2019

[C12] P. F. Antonietti, A. Ferroni, I. Mazzieri, R. Paolucci, A. Quarteroni, **C.Smerzini**, and M. Stupazzini (2018) Numerical modeling of seismic waves by discontinuous spectral element methods. In *43-ème Congrès National d'Analyse Numérique, CANUM2016 – ESAIM Proceedings and Surveys* - ISSN:2267-3059 vol. 61

[C13] **C.Smerzini** (2018) Spatial variability of earthquake ground motion from 3D physics-based numerical simulations. In *Proceedings of the 16th European Conference on Earthquake Engineering*, Thessaloniki, 18-21 June 2018.

[C14] **C.Smerzini**, F. Cavalieri, S. Argyroudis, and K. Pitilakis (2018) 3D physics-based numerical modeling as a tool for seismic risk assessment of urban infrastructural systems: the case of Thessaloniki, Greece. In *Proceedings of the 16th European Conference on Earthquake Engineering*, Thessaloniki, 18-21 June 2018.

[C15] I. Mazzieri, L. Melas, **C.Smerzini**, and M. Stupazzini (2018) The role of near-field ground motion on seismic risk assessment in large urban areas. In *Proceedings of the 16th European Conference on Earthquake Engineering*, Thessaloniki, 18-21 June 2018

[C16] V. Bhanu, A.G. Özcebe, and **C.Smerzini** (2018) A study on vertical component of earthquake ground motion and its effect on a bridge. In *Proceedings of the 16th European Conference on Earthquake Engineering*, Thessaloniki, 18-21 June 2018

[C17] K. Hashemi, and **C.Smerzini** (2018) Comparison of 1D vs 2D vs 3D numerical approaches for prediction of seismic ground motion and site effects in Thessaloniki urban area. In *Proceedings of the 16th European Conference on Earthquake Engineering*, Thessaloniki, 18-21 June 2018

[C18] M. Infantino, R. Paolucci, **C.Smerzini**, and M. Stupazzini (2018) Study of the Spatial Correlation of Earthquake Ground Motion By Means of Physics-Based Numerical Scenarios. In *Proceedings of the 16th European Conference on Earthquake Engineering*, Thessaloniki, 18-21 June 2018

[C19] M. Infantino, R. Paolucci, and **C.Smerzini** (2018) Analysis of the spatial correlation of earthquake ground motion from physics-based numerical simulations. In *Proceedings of the 2nd Workshop: Best Practices in Physics-based Fault Rupture Models for Seismic Hazard Assessment of Nuclear Installations: issues and challenges towards full Seismic Risk Analysis*, Cadarache, 14-16 May 2018

[C20] R. Paolucci, I. Mazzieri, A.G. Özcebe, **C.Smerzini**, M. Stupazzini, and M. Infantino (2017) 3D physics-based earthquake scenarios in Istanbul for seismic risk assessment. In *Proceedings of the 16th World Conference on Earthquake Engineering (16WCEE)*, number Paper N. 1478, Santiago, Chile, January 9–13 2017

[C21] M. Stupazzini, M. Infantino, A. Allmann, M. K¨aser, R. Paolucci, I. Mazzieri, and **C.Smerzini** (2017) PSHAe (Probabilistic Seismic Hazard Assessment enhanced): the case of Istanbul. In *Proceedings of the 16th World Conference on Earthquake Engineering (16WCEE)*, number Paper N. 1631, Santiago, Chile, January 9–13 2017

[C22] M. Stupazzini, M. Infantino, A. Allmann, M. Käser, I. Mazzieri, A.G. Özcebe, R. Paolucci, and **C.Smerzini** (2016) Near-fault earthquake ground-motion simulation in the Istanbul area. In *Proceedings of the 5th IASPEIIAEE International Symposium: Effects of Surface Geology on Seismic Motion (ESG5)*, Taipei, Taiwan, August 15–17 2016

[C23] **C.Smerzini**, K. Pitilakis, and K. Hashemi (2016) 3D numerical modelling of the seismic response of the Thessaloniki urban area: the case of the 1978 Volvi earthquake. In *Bulletin of the Geological Society of Greece – Proceedings of the 14th International Conference of the Geological Society of Greece (EGE2016)*, Thessaloniki, Greece, May 25-27 2016

[C24] O. Zanoli, **C.Smerzini**, and E.J. Parker (2016) Vertical input for seismic analysis of offshore structures. In *Proceedings of the 2016 Offshore Technology Conference (OTC 2016)*, number OTC-27140-MS, Houston, Texas, USA, May 2-5 2016

[C25] K. Hashemi, I. Mazzieri, R. Paolucci, and **C.Smerzini** (2015) Spatial variability of near-source seismic ground motion with respect to different distance metrics, with special emphasis on May 29 2012 Po Plain Earthquake, Italy. In *Proceedings of the 7th International Conference on Seismology and Earthquake Engineering (SEE7)*, Tehran, Iran, May 18-21 2015

[C26] M. Stupazzini, A. Allmann, M. Käser, I. Mazzieri, A.G. Özcebe, R. Paolucci, and **C.Smerzini** (2015) PSHAe (Probabilistic Seismic Hazard Analysis enhanced): the case of Istanbul. In *Proceeding of the 10th Pacific Conference on Earthquake Engineering (10PCEE)*, Syndney, Australia, November 6-8 2015

[C27] **C.Smerzini**, I. Mazzieri, and R. Paolucci (2015) 3D physics-based numerical simulations of the MW6 May 29 2012 Emilia earthquake. In *Proceedings of the Workshop on Best Practices in Physics-based Fault Rupture Models for Seismic Hazard Assessment of Nuclear Installations (BestPSHANI)*, Vienna, Austria, November 18-20 2015

[C28] M. G. Mulas, R. Pantalena, **C.Smerzini**, and D. Coronelli (2014). The assessment of an existing RC framed structure: a case study on a collapsed building. In *Proceedings of the IX International Conference on Structural Dynamics (EURODYN 2014)*, Porto, Portugal, June 30 - July 2 2014

[C29] R. Paolucci, M. Stupazzini, P. F. Antonietti, R. Guidotti, I. Mazzieri, **C.Smerzini**, and M. Beretta (2013). Deterministic seismic scenarios from 3D numerical simulations. In *Proceedings of the Vienna Congress on Recent Advances in Earthquake Engineering and Structural Dynamics 2013 (VEESD 2013)*, number 255, Vienna, Austria, August 28-30 2013

[C30] R. Guidotti, M. Stupazzini, **C.Smerzini**, and R. Paolucci (2012). The 22 February 2011 MW 6.3 Christchurch earthquake: 3D numerical simulations of strong ground motion. In *Proceedings of the 2nd International Conference on Performance Based Design in Earthquake Engineering (IIPBD)*, Taormina, Italy, May 28-30 2012

[C31] **C.Smerzini**, M. Villani, E. Faccioli, and R. Paolucci (2012). 3D numerical simulations in complex near-field geological configurations during the MW 6.3 L'Aquila earthquake. In *Proceedings of the 15th World Conference on Earthquake Engineering (15WCEE)*, number 2362, Lisbon, Portugal, September 24-28 2012

[C32] **C.Smerzini**, R. Paolucci, C. Galasso, and I. Iervolino (2012). Engineering ground motion selection based on displacement-spectrum compatibility. In *Proceedings of the 15th World Conference on Earthquake Engineering (15WCEE)*, number 2354, Lisbon, Portugal, September 24-28 2012

[C33] J. R. Abraham and **C.Smerzini** (2012). Observed and simulated ground motions in the Gubbio basin, Central Italy during the MW 5.7 1984 earthquake. In *Proceedings of the 15th World Conference on Earthquake Engineering (15WCEE)*, number 3684, Lisbon, Portugal, September 24-28 2012

[C34] C. Cauzzi, D. F¨ah, V. Pessina, E. Faccioli, and **C.Smerzini** (2012). Topographic amplification from recorded earthquake data and numerical simulations. In *Proceedings of the 15th World Conference on Earthquake Engineering (15WCEE)*, number 2341, Lisbon, Portugal, September 24-28 2012

[C35] R. Paolucci and **C.Smerzini** (2011). 3D numerical simulations of earthquake ground motion in sedimentary basins: the cases of Gubbio and L'Aquila, Central Italy. In *Proceedings of the 4th IASPEI–IAEE International Symposium on the Effects of Surface Geology on Seismic Motion*, Santa Barbara, USA, August 23-26 2011

[C36] I. Mazzieri, **C.Smerzini**, Paola F. Antonietti, F. Rapetti, M. Stupazzini, R. Paolucci, and A. Quarteroni (2011). Non-conforming spectral approximations for the elastic wave equation in heterogeneous media. In *ECCOMAS Thematic Conference: 3rd International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPDYN 2011)*, Corfù, Greece, May 26-28 2011

[C37] **C.Smerzini**, M. Stupazzini, and R. Paolucci (2011). Numerical simulation of seismic response at Gubbio basin, Central Italy. In *Proceedings of the 5th International Conference on Earthquake Geotechnical Engineering (5ICEGE)* Santiago, Chile, January 10-13 2011

[C38] R. Paolucci and **C.Smerzini** (2010) Strong ground motion in the epicentral region of the MW 6.3 Apr 6 2009, L'Aquila earthquake, Italy. In *Proceedings of the 5th International Conference on Recent advances in Geotechnical Earthquake Engineering and Soil Dynamics*, number, EQ4, San Diego, California, USA, May 24-29 2010

[C39] E. Faccioli, M. Vanini, M. Villani, C. Cauzzi, and **C.Smerzini** (2010). Mapping seismic hazard to account for basin amplification effects. In *Proceedings of the 9th International Workshop on Seismic Microzoning Risk Reduction*, Cuernavaca, México, February 21-24 2010

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[C41] L. Scandella, **C.Smerzini**, and R. Paolucci (2008). Experimental and numerical study on earthquake-induced ground strains. In *Proceedings of the 14th World Conference on Earthquake Engineering*, number 06-0009, Beijing, China, October 12-17 2008

[C42] **C.Smerzini**, E. Faccioli, R. Paolucci, L. Scandella, and W.R Stephenson (2006). Surface ground strains evaluated from weak motion records of dense seismograph arrays: the case of Parkway Valley, New Zealand. In *Proceeding of the 1st European Conference on Earthquake Engineering and Seismology (1ECEES)*, number 879, Geneve, Switzerland, September 3-8 2006

Book Chapters

[B1] R. Paolucci, M. Infantino, I. Mazzieri, A.G. Özcebe, **C.Smerzini**, M. Stupazzini (2018). 3D physics-based numerical simulations: advantages and current limitations of a new frontier to earthquake ground motion prediction. The Istanbul case study. In *Pitilakis K. (eds) Recent Advances in Earthquake Engineering in Europe. ECEE 2018. Geotechnical, Geological and Earthquake Engineering*, vol 46. Springer

[B2] R. Paolucci, I. Mazzieri, **C.Smerzini**, and M. Stupazzini (2014). Physics-based earthquake ground shaking scenarios in large urban areas. In *A. Ansal, editor, Perspectives on European Earthquake Engineering and Seismology, Geotechnical, Geological and Earthquake Engineering*, volume 34. Springer.

Bibliometric Indices

Scopus (last accessed July 2022)

- H-index: 15
- Total number of documents: 39
- Total number of citations: 852

Professional and Forensic Consulting

[R1] Consulting activity for the Court of Rieti within the trial for the collapse of a bell tower during the 24 Aug, 2016 Amatrice earthquake.

[R2] SOIL Srl (2016). Mamba Field - Export Pipeline, Seismic Local Site Response Analysis, Geotechnical and Geohazard Supporting Studies, Mozambique Program. Consulting activity for the company SOIL Srl with the aim of performing site-specific site response analyses and of defining the design response spectra at the gas-fields for the export pipeline and deepwater subsea structures, for the ENI Mozambique Project, Eastern Africa.

[R3] SOIL Srl (2015). Probabilistic Seismic Hazard Assessment, Mamba Straddling Resources, Mozambique Program. Consulting activity for the company SOIL Srl with the aim of providing Probabilistic Seismic Hazard Assessment (PSHA) at the onshore plant and the related nearshore structures, the pipeline corridor (onshore, nearshore and offshore) and the offshore Mamba and Coral fields, for the ENI Mozambique Project, Eastern Africa.

[R4] Procedimento Penale R.G. n. 392/11 – Edificio 11 – Via Gabriele D'Annunzio 24/26. Technical report for the Criminal Court of L'Aquila (2013). Scientific activity carried out as a member of the academic team appointed by Prof. M.G. Mulas, in quality of scientific consultant of the legal authority, for the Criminal Court of L'Aquila with the aim of investigating the causes and the mechanism of the collapse of the building located in Via G. D'Annunzio 24/26 during the April 6, 2009 L'Aquila earthquake.

[R5] R. Paolucci and C. Smerzini (2009). Valutazione dell'effetto di un parcheggio sotterraneo sul moto sismico risentito nell'area di Via XX settembre 79, L'Aquila. Technical report for the Public Prosecutor's Office of L'Aquila. Consulting activity for the Public Prosecutor's Office of L'Aquila with the objective of analyzing the role of an underground parking on the earthquake ground shaking within the area of Via XX settembre 79, where a RC building collapsed during the April 6, 2009 L'Aquila earthquake.

Seminars and Conference

Invited Seminars and Lectures

- "*Spatial correlation of earthquake ground motion: insights from 3D physics-based numerical simulations*", Spring School of the ITN-EU URBASIS Project, Autrans, Grenoble, May 16 – 20, 2022.
- "*L'analisi di risposta sismica locale e l'interazione dinamica terreno-struttura nella determinazione dell'azione sismica sulle strutture*", organized by ATE association (Associazione Tecnologi per l'Edilizia), July 6 and 9, 2021, Virtual.

- "*On the use of 3D physics-based ground motion simulations for seismic hazard and risk assessment*". Department of Civil and Environmental Engineering, Politecnico di Milano, Jun. 26, 2019.
- "*Future challenges in seismic hazard and risk assessment: 3D physics-based numerical simulations of earthquake ground motion*". Department of Civil Engineering, University College London (UCL), Jan. 21, 2019, Invited seminar by Prof. C. Galasso.
- "*Gli effetti di sito nella valutazione delle azioni sismiche di progetto*" within the Short Course *Pericolosità Sismica e Azioni Sismiche di Progetto (con riferimento alle NTC 2018 e circolare 2019)*, organized by ATE association (Associazione Tecnologi per l'Edilizia), May 22, 2019.
- "*3D physics-based numerical simulations of earthquake ground motion in the Thessaloniki urban area: application to seismic hazard and risk analyses*". Department of Civil Engineering, Aristotle University of Thessaloniki AUTH, Thessaloniki, Greece, Dec. 17, 2015. Invited seminar by Prof. K. Pitilakis.
- "*SPEED: a high-performance spectral element code for multi-scale earthquake ground shaking scenarios*". Department of Civil Engineering, Aristotle University of Thessaloniki (AUTH), Thessaloniki, Greece, Mar. 6, 2015. Invited seminar by Prof. K. Pitilakis.
- "*Vertical Input Spectra for Structural Analyses of Offshore Structures*". Invited lecture given at the company D'Appolonia S.p.A., Geosciences Division, Genova, Italy. Nov. 13, 2014. Invited lecture by E. J. Parker.
- "*SPEED-Spectral Elements in Elastodynamics: a Non-Conforming Approach for Engineering Seismology and Earthquake Engineering Applications*". HP14 Research Seminar Structural Mechanics, Department of Civil Engineering of KU Leuven, Belgium, Jan. 17, 2014. Invited seminar by Prof. G. Degrande.
- "*Broadband Numerical Simulations in Complex Near-Field Geological Configurations: the Case of the M_W 6.3 L'Aquila Earthquake*". Charles University of Prague, Department of Geophysics, Faculty of Mathematics, Nov. 9, 2014. Invited seminar by Prof. Frantisek Gallovič.

Invited Keynotes and Conference Talks

- "*Advances and open challenges in engineering use of physics-based numerical simulation of earthquake ground motion*", Keynote Lecture at the Final Symposium of SIGMA2 Project, Avignon, France, May 31 – June 2, 2022
- Invited presentation on ground motion simulation efforts at Politecnico di Milano at the COSMOS Ground-Motion Simulation Working Group Workshop 1, June 7 – 8, 2022, Virtual
- "*Large-Scale Numerical Simulations for Earthquake Ground Motion Prediction: What Perspectives Towards Seismic Hazard and Risk Assessment?*", SIAM Conference on Mathematical and Computational Issues in Geosciences, June 21-24 2021, Virtual
- "*3D numerical simulation of induced earthquakes in the Groningen gas field*", Joint conference 14th World Congress in Computational Mechanics (WCCM) - ECCOMAS Congress 2021, Virtual.
- "*Physics-based Numerical Simulation of Earthquake Ground Motion through a High-Performance Spectral Element Code: the case of Thessaloniki, Northern Greece*", IV ECCOMAS Young Investigator Conference – YIC 2017, Milan, Italy, Sept. 13 – 15, 2017.
- "*On the comparison between physics-based numerical simulations and observations from real earthquakes*". European Geosciences Union General Assembly 2016 (EGU 2016), Session NH4.5/SM2.7 Fault2SHA "Common practices and new hints towards physics-based and testable PSHA", Vienna, Austria, April 17 – 22, 2016.
- "*3D physics-based numerical simulations of the M_W 6.0 May 29 2012 Emilia Earthquake*". International Workshop on Best Practices in Physics-based Fault Rupture Models for Seismic Hazard Assessment of Nuclear Installations (BestPSHANI), Vienna, Austria, Nov. 19, 2014.
- "*3D ground motion simulation of the M_W 6.2 Christchurch earthquake*". 2nd International Conference on Performance-Based Design in Earthquake Engineering (IIPBD), Taormina, Italy, May 28 – 30, 2012.

Conference and workshop organization

- Chair of the thematic session "*Hazard impact*" of the EPOS-IT Workshop on Earthquake Hazard, Dec. 1 – 3, 2020. Virtual.
- Member of the organizing committee of the mini-symposium "*Advances in the numerical simulation of multi-scale seismic wave propagation*" within the 2021 SIAM Conference on Mathematical and Computational Issues in Geosciences, Milano, June 21–24, 2021.
- Member of the organizing committee of the mini-symposium "*Recent Advances in numerical methods for seismic wave propagation*" within the 2019 ECCOMAS Young Investigator Conference, Krakow, Poland, Sept. 1–6, 2019.

Contributed Conference Talks

- "*Physics-based ground shaking scenarios for empirical fragility studies: the case-study of the 2009 L'Aquila earthquake* ". 40° Convegno del Gruppo Nazionale di Geofisica della Terra Solida – GNGTS, Trieste, June 27 – 29, 2022.
- "*Spatial variability of earthquake ground motion from 3D physics-based numerical simulations*". 16th European Conference on Earthquake Engineering, Thessaloniki, June 18 – 21, 2018.
- "*3D physics-based numerical modeling as a tool for seismic risk assessment of urban infrastructural systems: the case of Thessaloniki, Greece*". 16th European Conference on Earthquake Engineering, Thessaloniki, June 18 – 21, 2018.
- "*Spatial variability of earthquake ground motion from dense-array observations and 3D numerical simulations*". 6th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering – COMPDYN, Rhodes Island, Greece, June 15 – 17, 2017.
- "*Deterministic seismic scenarios from 3D numerical simulations*". Vienna Congress on Recent Advances in Earthquake Engineering and Structural Dynamics (VEESD2013), Vienna, Austria, Aug. 28 – 30, 2013.
- "*3D numerical simulations in complex near-field configurations during the M_W 6.3 L'Aquila earthquake*". 15th World Conference on Earthquake Engineering (15WCEE), Lisbon, Portugal, Sept. 24 – 28, 2012.
- "*3D ground motion simulation of the M_W 6.2 Christchurch earthquake*". 2nd International Conference on Performance-Based Design in Earthquake Engineering (IIPBD), Taormina, Italy, May 28 – 30, 2012.
- "*Numerical simulations of seismic response at Gubbio basin, Central Italy*". 5th International Conference on Earthquake Geotechnical Engineering (5ICEGE), Santiago, Chile, Jan. 10 – 13 2011.
- "*The earthquake source in numerical modeling of seismic wave propagation in heterogeneous Earth media*". 11th International ROSE School Seminar, Pavia, Italy, May 19 – 20, 2011.
- "*1D, 2D and 3D numerical modeling of seismic site response: the case of Gubbio basin*". Final Meeting of the Seismological Projects, 2007-2009 DPC-INGV agreement, Rome, Italy, June 30 – July 2, 2010.
- "*Experimental and numerical study on earthquake-induced ground strains*". 14th World Conference on Earthquake Engineering (14WCEE), Beijing, China, Oct 12 – 17, 2008.
- "*Analytical solutions for the seismic response of underground structures under SH wave propagation*". International Conference on Earthquake Engineering commemorating the 1908 Messina and Reggio Calabria Earthquake (MERCEA08), Reggio Calabria, Italy, July 8 - 11, 2008.
- "*Earthquake-induced transient ground strains and rotations from dense seismic networks*". 8th International ROSE School Seminar, Pavia, Italy, May 22 – 23, 2008.

Referee Activities

- *International Journals*
  Earthquake Engineering and Structural Dynamics; Earthquake Spectra; Bulletin of Earthquake Engineering; Journal of Earthquake Engineering; Soil Dynamics and Earthquake Engineering; Bulletin of the Seismological Society of America; Geophysical Journal International; Journal of Seismology; International Journal of Disaster Risk Reduction; Pure and Applied Geophysics; Structures; Annals of Geophysics; KSCE Journal of Civil Engineering; Solid Earth Discussions; Earthquake Engineering and Engineering Vibration; Geosciences; Earthquakes and Structures; European Journal of Environmental and Civil Engineering; Engineering Geology; Italian Journal of Geosciences

Institutional Activities

Since 2021 Member of the Board of the PhD Programme in Structural, Seismic and Geotechnical Engineering, Department of Civil and Environmental Engineering, Politecnico di Milano

Since 2019 Member of the Commission of the School of Civil, Environmental and Land Planning Engineering and of the School of Industrial and Information Engineering, in charge of dissemination activities of Politecnico di Milano for schools.
Responsible of the Degree Programme in Civil Engineering for the dissemination and communication activities for schools

Main Research interests

- Development of advanced numerical approaches based on Spectral Elements for earthquake ground motion prediction;
- Physics-based numerical simulations of earthquake ground motion for seismic hazard and risk assessment in urban areas and for critical infrastructures;
- Characterization of earthquake ground motion in near-source conditions and in complex geological configurations;
- Definition of seismic actions for design;
- Spatial variability of earthquake ground motion and its impact on engineered structures.