

## **Elisa Zuccolo, Ph.D.**



### ***Education:***

- Ph.D. degree in Geophysics of the Lithosphere and Geodynamics at University of Trieste (April 16, 2010). *Dissertation:* Neo-deterministic seismic hazard scenarios: from the modelling of the past to prediction.
- Master degree (2 years) in Earth and Environmental Physics at University of Trieste (October 26, 2006). *Thesis:* Input sismico a Nimis per l'applicazione dell'isolamento sismico all'edilizia residenziale.
- Bachelor degree (3 years) in Physics at University of Trieste (November 5, 2004). *Thesis:* Radiazione da una sorgente sismica estesa e direttività.

### ***Scientific experience:***

- Post-doctoral researcher at University of Pavia (1 July 2010 – present)
- Research fellow at EUCENTRE (1 February 2010 - 30 June 2010)

### ***Projects involvement:***

- DGfM Project (Seismic performance of modern masonry buildings during the Emilia 2012 earthquake), funded by SDA--engineering GmbH – Definition of the seismic input at three selected sites.
- MPS16 – Realization of an updated seismic hazard model for Italy, promoted by CPS (Centro di pericolosità sismica), INGV – Computation of activity rates according with the smoothed seismicity approach by Woo (1996).
- “Definition of acceleration time series for the Eemshaven-Delfzijl sea levee in the Groningen area (The Netherlands) compatible with the results of the seismic hazard study conducted by Bommer and Bourne (2015)”, funded by DELTARES.
- DPC-RELUIS 2014-2016 Project - Broad-Band Simulations of Emilia May 29, 2012 Quake.
- STRIT, Tools and technologies for risk management of transportation infrastructures, Project (Code PON01\_02366), in the framework of the National Operational Programme for Research and Competitiveness 2007-2013 (NOP for R&C), cofounded with the European Regional Development Fund and national resources. – Development of a regional low-magnitude GMPE to estimate spectral accelerations for earthquake early warning applications in Southern Italy.
- “Prosecuzione delle attività di definizione di input sismici sismocompatibili e spettrocompatibili per i comuni della Regione Toscana” funded by Tuscany Region.
- “Definizione di input sismici sismocompatibili e spettrocompatibili per i comuni della Regione Toscana” funded by Tuscany Region.
- “Definizione del Terremoto di Progetto nei territori toscani della Garfagnana, Lunigiana, Mugello, Val di Sieve e Montagna Fiorentina” funded by Tuscany Region.
- REAKT (Strategies and tools for Real Time EArthquake RiSk ReducTion), Project of the 7th framework program – Feasibility study of an earthquake early warning system in the Caribbean Islands (WP7).
- DPC-RELUIS 2010-2013 Project – Proposal of Modification of Code-Based Elastic Response Spectra to Account for Near-Fault Effects.
- ASTIL (Reduction of seismic risk of architectural heritage in Italy and India) funded by Regione Lombardia - Definition of seismic input at the sites under investigation.
- Assessment and Mitigation of Seismic Risk in the Eastern Caribbean Region, Customer: Milan Municipality.
- SISMA (Seismic Information System for Monitoring and Alert) Project founded by ASI (Italian Space Agency).
- NASG (North Africa Seismological Group) Project aimed at the compilation of a uniform earthquake catalogue and seismic hazard map for North Africa, funded by ICTP.
- Project 1202.038-09 Unified representation of trans-frontalier macroseismic data sets. Organized by the CEI (Central European Initiative) Earth Sciences Committee mainly in cooperation with the Abdus Salam International Centre for Theoretical Physics (ICTP) and SAND Group.

### ***Research topics:***

- Feasibility study of earthquake early warning systems;
- Definition of the seismic input for non-linear dynamic analyses;
- Neo-deterministic seismic hazard assessment (multi-scale time-dependent seismic hazard scenarios);
- Probabilistic seismic hazard assessment;
- Wave propagation in 1D, 2D and 3D media;
- Numerical modelling of extended seismic sources;
- Study and modelling of near fault effects;
- Local ground response analyses;
- Reevaluation of historical earthquakes;
- Influence of climatic phenomena on earthquake occurrence.

### ***Main Publications***

- **Zuccolo, E.**, Panza, G.F., Vaccari, F., Peresan, A. (2007). Definizione deterministica dell'input sismico per l'applicazione dell'isolamento sismico all'edilizia residenziale. 21MO SECOLO. vol. 2, pp. 47-48.
- **Zuccolo, E.**, Vaccari, F., Peresan, A., Dusi, A., Martelli, A., Panza, G.F. (2007). Neo-deterministic definition of the seismic input at Nimis and its application to the seismic isolation of residential buildings. GEOLOGIA TECNICA & AMBIENTALE. vol. 1-2 ISSN: 1722-0025.
- Koleva, G., Vaccari, F., Paskaleva, I., **Zuccolo, E.**, Panza, G.F. (2008). An approach of microzonation of the Sofia city. ACTA GEODAETICA ET GEOPHYSICA HUNGARICA. vol. 43, pp. 231-248 ISSN: 1217-8977.
- **Zuccolo, E.**, Vaccari, F., Peresan, A., Dusi, A., Martelli, A., Panza, G. F. (2008). Neo-deterministic definition of seismic input for residential seismically isolated buildings. ENGINEERING GEOLOGY. vol. 101, pp. 89-95 ISSN: 0013-7952. doi:[10.1016/j.enggeo.2008.04.006](https://doi.org/10.1016/j.enggeo.2008.04.006).
- Peresan, A., **Zuccolo, E.**, Vaccari, F., Panza G.F. (2009). Neo-Deterministic Seismic Hazard Scenarios For North-Eastern Italy. ITAL.J.GEOSCI. (BOLLETTINO DELLA SOCIETÀ GEOLOGICA ITALIANA), 128, 1, pp. 229-238.
- Bozzoni, F., Corigliano, M., Lai, C.G., Salazar, W., Scandella, L., **Zuccolo, E.**, Latchman, J., Lynch, L., Robertson, R. (2011): Probabilistic Seismic Hazard Assessment at the Eastern Caribbean Islands. Bulletin of Seismological Society of America, Vol.101, No.5, pp. 2499-2521.
- **Zuccolo, E.**, Vaccari, F., Peresan, A., Panza, G.F. (2011). Neo-Deterministic and Probabilistic Seismic Hazard Assessments: a Comparison over the Italian Territory. Pure Appl. Geophys, 168 (1-2), 69-83.
- Peresan, A., **Zuccolo, E.**, Vaccari, F., Gorshkov, A., Panza, G.F. (2011). Neo-Deterministic Seismic Hazard and Pattern Recognition Techniques: Time-Dependent Scenarios for North-Eastern Italy. Pure Appl. Geophys, 168(3-4), 583-607.
- Panza G.F., Peresan A., **Zuccolo E.** (2011). Climatic modulation of seismicity in the Alpine-Himalayan mountain ranges. Terra Nova, 23 (1), 19-25.
- Rota, M., **Zuccolo, E.**, Taverna, L., Corigliano, M., Lai, C.G., Penna, A. (2012) Mesozonation of Italian Territory for Definition of Compatible Accelerograms. Bulletin of Earthquake Engineering, Volume 10 (5), 1357-1375.
- **Zuccolo, E.**, Corigliano, M., Lai, C.G. (2013). Probabilistic seismic hazard assessment of Italy using kernel estimation methods, J Seismol. DOI 10.1007/s10950-013-9369-0
- Taverna, L., **Zuccolo, E.**, Corigliano, M., Rota, M., Lai, C.G., Penna, A. (2013) Definizione di accelerogrammi reali spettro-compatibili per l'intero territorio nazionale. Progettazione Sismica 4 (2), 63-79.
- Mourabit, T., Abou Elenean, K. M., Ayadi, A., Benouar, D., Ben Suleman, A., Bezzeghoud, M., Cheddadi, A., Chourak, M., ElGabry, M.N., Harbi, A., Hfaiedh, M., Hussein, H. M., Kacem, J., Ksentini, A., Jabour, N., Magrin, A., Maouche, S., Meghraoui, M., Ousadou, F., Panza, G. F., Peresan, A., Romdhane, N., Vaccari, F., **Zuccolo, E.** (2014) Neo-deterministic seismic hazard assessment in North Africa. J Seismol 18, 301–318.
- **Zuccolo, E.**, Corigliano, M., Lai, C.G. (2014). Selection of spectrum- and seismo-compatible accelerograms for the Tuscany region in Central Italy. Soil Dynamics and Earthquake Engineering 66, 305–313.
- Ullah, S., Bindi, D., Pilz, M., Danciu, L., Weatherill, G., **Zuccolo, E.**, Ischuk, A., Mikhailova, N.N., Abdrakhmatov, K., Parolai, S. (2015) Probabilistic seismic hazard assessment for Central Asia. Annals of Geophysics 58 (1), S0103.
- **Zuccolo, E.**, Gibbs, T., Lai, C.G., Latchman, J.L., Salazar, W., Di Sarno, L., Farrell, A., Lynch, L., Workman, A. (2016). Bull Earthquake Eng 14, 2579–2605.