Antonio Pio Sberna

Curriculum vitæ

Department of Structural, Geotechnical and Building Engineering
Politecnico di Torino
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PhD student of Civil and Environmental Engineering (Structural Engineering)

Personal information

Place and date of birth	Enna (Italy), February 10, 1994
Language skills	Italian (native), English (fluent)
Citizenship	Italian
Professional qualification	Registered engineer qualified on second national exam session of 2020 Member of the Association of Engineers of Enna numb. 856

Education

Nov 2020 – present **PhD in Civil and Environmental Engineering**, *Politecnico di Torino.*
Research intererest: *Optimization of retrofitting intervention of existing structures. Artificial intelligence applications for seismic engineering and collapse risks reduction.*
Advisors: Prof. Giuseppe Marano and Prof. Fabio Di Trapani

Oct 2017 – Jul 2020 **MS in Civil Engineering**, *Politecnico di Torino.*
Master thesis (in english): *Optimal seismic retrofitting of reinforced concrete buildings by steel-jacketing using a genetic algorithm-based framework*
Advisors: Prof. Fabio Di Trapani and Prof. Giuseppe Marano

Oct 2013 – Apr 2017 **BS in Civil Engineering**, *Università degli studi di Catania.*
Bachelor thesis (in italian): *Influenza dello sforzo normale sul collasso plastico di strutture intelaiate (Effect of axial load on the plastic collapse of frame structures)*
Advisor: Prof. Annalisa Greco

Publications on international journals

1. Di Trapani F., Malavisi M., Marano G.C., **Sberna A.P.**, Greco R. "Optimal seismic retrofitting of reinforced concrete buildings by steel-jacketing". *Engineering Structures*, 2020; 219:110864.
2. Di Trapani F., **Sberna A.P.**, Marano G.C. "A new genetic algorithm-based framework for optimized design of steel-jacketing retrofitting in shear-critical and ductility-critical RC frame structures". *Engineering Structures*, 2021; 246:112684.
3. Di Trapani F., Vizzino A., Tomaselli G., **Sberna A.P.**, Bertagnoli G. *"A new empirical formulation for the out-of-plane resistance of infilled reinforced concrete frames without prior in-plane loading "*, Engineering Structures, in-press.

4. Di Trapani F., **Sberna A.P.**, Marano G.C. "AI-based optimization framework for the design of seismic retrofitting of reinforced concrete frame structures based on direct costs and EAL". *Computers and Structures*, 2021; 246:112684.

Conference proceedings

1. Di Trapani F., Malavisi M., Marano G.C., **Sberna A.P.** "Genetic algorithm-based optimization of RC frame structures retrofitting with steel jacketing". *IWSS2020 – 1st Italian Workshop on Shell and Spatial Structures*, web meeting, 25th-26th June 2020
2. Di Trapani F., **Sberna A.P.**, Tomaselli G., Marano G.C. "Cost-based and EAL based optimization algorithms for seismic retrofitting of RC frame structures". *Italian Concrete Days 2020 - Costruire in calcestruzzo realizzazione, ricerca, attualità e prospettive*, web meeting, 14th-16th April 2021.
3. Di Trapani F., **Sberna A.P.**, Marano G.C. "Cost and EAL based optimization for seismic reinforcement of RC structures". *IGF26 - 26th International Conference on Fracture and Structural Integrity*, Turin (Italy), 26th-31st May 2021.
4. **Sberna A.P.**, Di Trapani F., Marano G.C. "Optimization of steel-jacketing retrofitting of shear-critical and ductility-critical RC frame structures by a novel genetic algorithm framework". *COMPDYN 2021 - 8th ECCOMAS International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering*, streamed from Athens (Greece), 28th-30th June 2021.
5. Di Trapani F., **Sberna A.P.**, Marano G.C. "Expected Annual Loss oriented seismic retrofitting optimization of RC frame structures using a new AI-based framework". *COMPDYN 2021 - 8th ECCOMAS International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering*, streamed from Athens (Greece), 28th-30th June 2021.
6. Di Trapani F., Tomaselli G., **Sberna A.P.**, Rosso M.M., Marano G.C., Cavaleri L., Bertagnoli G. "Dynamic response of infilled frames subject to accidental column losses". *EUROSTRUCT 2021 – 1st Conference of the European Association on Quality Control of Bridges and Structures*, Padua (Italy), 29th August – 1st September 2021.
7. **Sberna A.P.**, Di Trapani F., Marano G.C. "A novel framework based on Expected Annual Loss for optimizing seismic retrofitting in reinforced concrete structures". *2nd fib Symposium on Concrete and Concrete Structures*, Rome (Italy), 18th November – 19th November 2021.

Speaker in congresses, conferences and courses

Jun 2021 COMPDYN 2021 – 8th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, streamed from Athens (Greece), 28th-30th June 2021

Jul 2021 6th International course on Seismic Analysis of Structures using OpenSees (as tutor), University of Palermo (Italy), 19th-22nd July 2021.

Nov 2021 2nd FIB Symposium on Concrete and Concrete Structures, Rome (Italy), 18th–19th November 2021.

Teaching activities

2020 -2021 (spring) Tutoring, *Safety assessment and retrofitting of existing structures and infrastructures* (in english), graduate class, Politecnico di Torino

Turin, 16th June 2022