Stefano Sirotti

Nationality: Italian **Date of birth:** 11/08/1995 **Place of birth:** Modena, Italy

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ABOUT ME

ORCID: 0000-0002-0937-9075

WORK EXPERIENCE

University of Modena and Reggio Emilia – Modena, Italy

Assistant Professor

[01/07/2025]

University of Modena and Reggio Emilia – Modena, Italy

Research Fellow

[01/02/2024 – 30/06/2025]

Analytical and numerical modeling of elastic membranes for smart applications in the framework of PRIN 2022 project "New challenges of thin-walled structures at large strains and their promising applications".

University of Modena and Reggio Emilia – Reggio Emilia , Italy

Teaching Assistant

[03/2023 – 06/2024]

Tutoring classes to the students of the course "Mechanics of structures". Degree in Mechatronics Engineering.

Fuzhou University – Fuzhou, China

Visiting Student

[09/2019 – 01/2020]

The research was centered on the development on a hysteresis model to investigate the response of reinforced concrete infilled frames under cyclic loads. The development of the model was based on experimental data of single-storey infilled frames. The modeling was performed using MatLab and OpenSees.

EDUCATION AND TRAINING

PhD in Industrial and Territorial Engineering

University of Modena and Reggio Emilia, Department of Engineering "Enzo Ferrari" [01/11/2020 – 15/05/2024]

City: Modena | **Country:** Italy | **Thesis:** Mechanics of membrane structures in nonlinear elasticity

Analysis of the mechanical behavior of elastic membranes under large deformations

Master Degree in Civil Engineering

University of Modena and Reggio Emilia, Engineering Department "Enzo Ferrari" [09/2017 – 04/2020]

Address: Viale Pietro Vivarelli 10, 41125 Modena (Italy) | **Field(s) of study:** Engineering, manufacturing and construction: ● Building and civil engineering | **Final grade:** 110/110 cum laude | **Thesis:** A hysteretic model for RC infilled frames

Structural mechanics, computational mechanics, seismic engineering

Bachelor Degree in Civil and Environmental Engineering

University of Modena and Reggio Emilia, Engineering Department "Enzo Ferrari" [09/2014 – 07/2017]

Address: Viale Pietro Vivarelli 10, 41125 Modena (Italy) | **Field(s) of study:** Engineering, manufacturing and construction: ● Building and civil engineering | **Final grade:** 110/110 cum laude | **Thesis:** Simplified modeling of Ficarolo (Rovigo, Italy) tower within the frame of monitoring activities

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING C1 **READING** C1 **WRITING** C1

SPOKEN PRODUCTION C1 **SPOKEN INTERACTION** C1

Spanish

LISTENING B1 **READING** B1 **WRITING** B1

SPOKEN PRODUCTION B1 **SPOKEN INTERACTION** B1

Chinese

LISTENING A2 **READING** A2 **WRITING** A2

SPOKEN PRODUCTION A2 **SPOKEN INTERACTION** A2

French

LISTENING C2 **READING** C2 **WRITING** C2

SPOKEN PRODUCTION C2 **SPOKEN INTERACTION** C2

SKILLS

Microsoft Office / Matlab / Wolfram Mathematica / OpenSees / AutoCAD / LateX / COMSOL

HONOURS AND AWARDS

[2019] University of Modena and Reggio Emilia

Study award UNIMORE for best graduates

[2017] University of Modena and Reggio Emilia

Study award UNIMORE for best graduates

PUBLICATIONS

[2026]

A microstructure-informed hyperelastic model for CNT-based polymer nanocomposites under large deformations Pelliciari, M., Sirotti, S., & Tarantino, A. M. *International Journal of Solids and Structures*, 113779.

[2025]

A strain energy function for the inflation of hyperelastic membranes Sirotti, S., Pelliciari, M., Aloisio, A., & Tarantino, A. M. *Mechanics of Materials*, 105442.

[2025]

Hyperelastic model for nonlinear elastic deformations of graphene-based polymer nanocomposites Pelliciari, M., Sirotti, S., Aloisio, A., & Tarantino, A. M. (2025). Hyperelastic model for nonlinear elastic deformations of graphene-based polymer nanocomposites. *International Journal of Solids and Structures*, *308*, 113144.

[2024]
Effect of compressibility on the mechanics of hyperelastic membranes Sirotti, S., Pelliciari, M., & Tarantino, A. M. *International Journal of Mechanical Sciences*, 278, 109441.

[2023]
A strain energy function for large deformations of compressible elastomers Pelliciari, M., Sirotti, S., & Tarantino, A. M. *Journal of the Mechanics and Physics of Solids*, *176*, 105308.

[2023]
Empirical formulation for the estimate of the equivalent viscous damping of infilled RC frames Sirotti, S., Aloisio, A., Pelliciari, M., & Briseghella, B. *Engineering Structures*, *288*, 116196.

[2023]
Analytical pressure–deflection curves for the inflation of pre-stretched circular membranes Sirotti, S., Pelliciari, M., Aloisio, A., & Tarantino, A. M. *European Journal of Mechanics-A/Solids*, 97, 104831.

[2022]
Analytical, numerical and experimental study of the finite inflation of circular membranes Pelliciari, M., Sirotti, S., Aloisio, A., & Tarantino, A. M. *International Journal of Mechanical Sciences*, 107383.

[2022]
Optimization of the structural coupling between RC frames, CLT shear walls and asymmetric friction connections Aloisio, A., Pelliciari, M., Sirotti, S., Boggian, F., & Tomasi, R. *Bulletin of Earthquake Engineering*, 1-26.

[2022]
Damage-Based Hysteresis Bouc-Wen Model for Reinforced Concrete Elements Sirotti, S., Pelliciari, M., Briseghella, B., & Tarantino, A. M. *Key Engineering Materials* (Vol. 919, pp. 178-187). Trans Tech Publications Ltd.

[2021]
Development and validation of new Bouc–Wen data-driven hysteresis model for masonry infilled RC frames S irotti, S., Pelliciari, M., Di Trapani, F., Briseghella, B., Carlo Marano, G., Nuti, C., & Tarantino, A. M. *Journal of Engineering Mechanics*, *147*(11), 04021092.

CONFERENCES AND SEMINARS

[19/06/2025 – 21/06/2025] Rhodes, Greece
1st HICOMP - Hellenic Italian Conference on Computational Mechanics, Biomechanics and Mechanics of Materials Presenter

[01/09/2024 – 06/09/2024] University of Naples, Naples, Italy.
AIMETA2024 - XXVI Congresso Nazionale AIMETA 2024 Presenter

[28/05/2024 – 31/05/2024] Universidad Politécnica de Madrid, Madrid, Spain.
EMMC19 - 19th European Mechanics of Materials Conference Presenter

[20/09/2023 – 23/09/2023] Pegaso University, Naples, Italy.
ICCSE3 - 3rd International Conference on Computations for Science and Engineering Presenter

[04/09/2022 – 08/09/2022] University of Palermo, Palermo, Italy.
AIMETA2022 – XXV Congresso Nazionale AIMETA 2022 Presenter

[04/07/2022 – 08/07/2022] National University of Ireland, Galway, Ireland.
ESMC2022 – 11th European Solid Mechanics Conference Presenter

[26/04/2021 – 28/04/2021] University of Modena and Reggio Emilia, Modena, Italy.