Federica Morandi
University Academic Curriculum Vitae

Personal information

Name: Federica Morandi

Education since leaving school

- **PhD in Energy, Nuclear and Environmental Control Engineering, 28th cycle, University of Bologna, 2016**
  Supervisor: Prof. Massimo Garai
  SSD: ING/IND-11
  Thesis title: "Theoretical and experimental investigation into stop-band properties of sonic crystals". Evaluation: Excellent.
- **Master's degree in Architecture and Building Engineering (European Standard 4/S), University of Bologna, 2012**
  Advisor: Prof. Massimo Garai
  Thesis title: "Acoustical characterization and study of sound radiation from stages: a comparison between the theatres of Cesenatico and Longiano". Grade: 110/110 with honors.
- National professional practice examination in Civil and Environmental Engineering (sez. A), 2012.

Present appointment

Tenure track researcher (RTT) at the Department of Industrial Engineering, Alma Mater Studiorum – Università di Bologna
Period: 01.10.2025 – present
Supervisor: Prof. Massimo Garai
SSD: ING/IND-11

Professional experience

- **Fixed-term contract researcher (RTDa) at the Faculty of Engineering, Free University of Bozen-Bolzano**
  Period: 01.02.2025 – 30.09.2025
  Supervisor: Prof. Andrea Gasparella
  SSD: ING/IND-11
  Project: Theoretical and experimental analysis of interactions between the built environment and users to support energy efficiency policies and the improvement of living and working conditions in buildings and urban centres.

- **Fixed-term contract resesarcher (RTDa) at the Faculty of Engineering, Free University of Bozen-Bolzano**
  Period: 01.01.2022 – 31.12.2024
  Supervisor: Prof. Andrea Gasparella
  SSD: ING/IND-11
  Project: FOREST (RTD PON, DM1062/2021): "FOstering Research

and Ecological Solutions for (green) Transition".
Activities: Analysis of the involvement of companies in the wood supply chain with respect to the implementation of measures finalized at the SDGs. Definition and mapping of KPIs (triple bottom line) to target green transition at the supply chain level, accounting for the specific needs of the different players and their relative improvement. Identification of technological solutions enabling the reduction of barriers and promoting the diffusion of timber construction. Investigation on occupants' behaviour as a measure to restore comfort in a multi-domain approach and its impact on energy efficiency.

- **Research Assistant at the Faculty of Science and Technology, Free University of Bozen-Bolzano**
  Period: 01.06.2020 – 31.12.2021
  Supervisor: Prof. Andrea Gasparella
  SSD: ING/IND-11
  Project: BIGWOOD (INTERREG V-A Italia-Austria, ID ITAT1375): "Reduction of barriers and prejudices on multi-storey wooden buildings through the creation of design awareness".
  Activities: Management of WP3 "Creating an environment for planning issues related to the process of large volume timber projects". Drafting of technical reports on the use of timber in construction, in collaboration with experts from companies from the sector (e.g., Xlam Dolomiti, LignoAlp, Rubner). Laboratory testing of sound insulation of lightweight timber walls and impact sound insulation of access floors on mass timber slabs - with the participation of Rotho Blaas, Liuni, Interface, Lombardini22. Analysis and case-study-based comparison of the Italian and Austrian legislative framework concerning energy efficiency of buildings, acoustic requirements, passive fire protection, and Life Cycle Assessment.

- **Research Assistant at the Faculty of Science and Technology, Free University of Bozen-Bolzano**
  Period: 01.06.2019 – 31.05.2020
  Supervisors: Prof. Andrea Gasparella, Prof. Giovanni Pernigotto
  SSD: ING/IND-11
  Project: E2I@NOI (FESR 2014-2020, ID 1095): "Definition of a system of laboratories for the development, characterization, and technology transfer for smart energy efficient buildings".
  Activities: Analysis of Indoor Environmental Quality (thermal, visual, and acoustic comfort, indoor air quality) in university classrooms through the establishment of measurement protocols including (i) the collection of subjective votes and objective measures, and (ii) statistical analysis of in-domain and cross-domain correlations.

- **Research Assistant at the Department of Industrial Engineering,**

University of Bologna
Period: 01.01.2016 – 31.05.2019
Supervisor: Prof. Luca Barbaresi
SSD: ING/IND-11
Project: Experimental analysis of flanking transmission on innovative junction systems for CLT panels.
Activities: Experimental characterization of vibration reduction indices for Cross Laminated Timber junctions with different connection systems thorough lab measurements and on-site validation. Definition of empirical formulas to predict Kij.

Visiting research positions

- **Visiting Researcher at the Technische Universität München**
  Period: 09.01.2023 – 01.02.2023
  Supervisor: Prof. Bernhard Seeber
  Activities: Development of psychoacoustic tests enabling users to undertake measures to optimize acoustic comfort and task-related performance.
- **Visiting research fellow at the University of Sherbrooke (Canada), 2018.**
  Period: 15.09.2018 – 15.12.2018
  Supervisor: Prof. Patrice Masson
  Activities: Application of optimized Non-Destructive Testing (NDT) techniques for the detection of anomalous moisture content in timber elements.
- **Visiting PhD Student at the Open University (Milton Keynes, UK)**
  Period: 01.09.2014 – 31.12.2014
  Supervisors: Dr. Shahram Taherzadeh, Prof. Keith Attenborough
  Activities: Implementation of semi-analytical methods to analyze the sound propagation in periodic media and validation by means of experimental measurements in the anechoic chamber.

Experience in academic teaching

Courses given in the 5 years at a national level

- AY 2023/2024. Course "Solar Energy Systems" (60 hours, EN), Master in Energy Engineering (LM-30), Free University of Bozen-Bolzano, University of Trento.
- AY 2023/2024. Course "Acoustic Design of Buildings" (30 hours, IT). Bachelor in Industrial and Mechanical Engineering (L9), Free University of Bozen-Bolzano.
- AY 2023/2024. Course "Building Design Concepts" (10 hours, IT), Ist level Master in Fire Safety Engineering, Free University of Bozen-Bolzano.
- AY 2023/2024. Course "High Performance Buildings – Comfort, Energy Efficiency" (30 hours, EN). Professional Bachelor in Wood Engineering (L9-wood), Free University of Bozen-Bolzano.

- AY 2022/2023. Course “Solar Energy Systems” (60 hours, EN), Master in Energy Engineering (LM-30), Free University of Bozen-Bolzano, University of Trento.
- AY 2022/2023. Course “Acoustic Design of Buildings” (30 hours, IT). Bachelor in Industrial and Mechanical Engineering (L9), Free University of Bozen-Bolzano.
- AY 2022/2023. Course “Building Design Concepts” (10 hours, IT), I° level Master in Fire Safety Engineering, Free University of Bozen-Bolzano.
- AY 2020/2021. Course “High Performance Buildings – Comfort, Energy Efficiency” (50 hours, EN). Professional Bachelor in Wood Engineering (L9-wood), Free University of Bozen-Bolzano.
- AY 2019/2020. Course “High Performance Buildings – Comfort, Energy Efficiency” (50 hours, EN). Professional Bachelor in Wood Engineering (L9-wood), Free University of Bozen-Bolzano.

<u>International teaching experiences</u>

- 2023/2024: PI of the project “TIMBER – TIMber Buildings for Environmental Respite”, funded within the Euregio Mobility Funds. The project envisages a series of lectures targeted at university students in the field of high-performance timber construction, with reference to structural engineering, energy performance, acoustic design, and fire protection. Host and speaker of the full-day seminar “Sound insulation of timber buildings”. Project partners: University of Innsbruck (Prof. Roland Maderebner), University of Trento (Prof. Alessandro Prada, Prof. Ivan Giongo).
- Guest lecturer at the Postgraduate Diploma in “Diseño, Cálculo y Construcción de Estructuras en Madera”. Teaching (20 hours) and lab activities (10 hours) on the topic “Building Science and Envelope design”, Universidad ORT, Montevideo, Uruguay, June 2019. Invitation issued by Prof. Laura Moya.
- Guest lecturer at the Master in Timber Construction, Universidad del Bío-Bío, Concepción, Chile, within the course “Diseño y Cálculo de Estructuras en Madera”, held on 26-28 July 2017. Invitation issued by Prof. Cecilia Poblete Arredondo.

<u>Students’ supervision</u>

- Co-advisor/support of 2 PhD students
- Advisor of 7 bachelor’s degree thesis
- Co-advisor of 6 bachelor’s degree thesis and of 8 master’s degree thesis
- Academic tutor of 4 internships

Speaker in seminars or courses

- Guest speakers at over 20 courses for professional boards, seminars or workshops at national and internation level (see annex for details).
- 2025: Team member of the project "proSOUNDS: audio processing and internet of sounds" funded by the Euregio Mobility Funds. PI: Dr. Niccolò Pretto, in collaboration with Prof. Alessandro Vietti (unibz), Prof. Lorenzo Spreafico (unibz) and Prof. Luca Turchet (unitn).

Memberships

Memberships in associations

- Member of *Associazione Italiana di Acustica* (AIA) since 2012.
- Member of *IBPSA Italy* since 2023.
- Member of *Associazione della Fisica Tecnica Italiana* since 2023.

Membership in organizing or scientific boards

- Member of the Organizing Committee of the event "nextFSE", Italian forum on fire safety, held at the NOI Techpark on October 4th, 2024.
- Member of the Organizing Committee of the international seminar "Fire Safety in Timber Construction", held on September 10th, 2024 at the NOI Techpark.
- Member of the Organizing Committee and of the Students Tutoring Scientific Committee at the Building Simulation Applications Conference 2024 (Bolzano, 26-28 June 2024).
- Member of the Organizing Committee and of the Students Tutoring Scientific Committee at the Building Simulation Applications Conference 2022 (Bolzano, 29 June-1 July 2022).
- Member of the Scientific Committee of the CLEM - Congreso Latinoamericano de Estructuras de Madera (Montevideo, 18-20 November 2019).
- Member of the Organizing Committee of the 8th International Symposium on Temporal Design (Bologna, 14-15 September 2017).
- 2017/2018: Manager of the technology transfer project "Proyectar, manufacturar y construir de forma sostenible con sistema de madera contralaminada - 17PDT-73489", co-funded by CORFO (Chilean government agency), granted to the University of Concepción (Chile) and co-executed by the University of Bologna and Rothoblaas GmbH. Coordination and teaching activities for courses and workshops related to high-performance timber construction.

Membership in international working groups

- 2024 – ongoing. Participation in the activities of IEA-EBC Annex 95 and Users TCP "Human-Centric Building Design and Operation for a Changing Climate".
- 2023 – ongoing. Participation in the activities of IEA-EBC Annex 91 "Open BIM for Energy Efficient Buildings".
- 2018 – 2023. Participation in the activities of IEA-EBC Annex 79 "Occupant-Centric Building Design and Operation".

Research and scholarships

Current research activity

- *Multi-domain comfort*

  Investigation on the interaction between different comfort domains (thermal, acoustical, visual and air quality) in educational buildings. Development of an integrated questionnaire and administration to university and high school students (1000+) to investigate sensation, preference, comfort, and satisfaction. Main focuses: (i) Analysis of in-domain and cross-domain correlations between objective measures and subjective response, (ii) determination of thresholds of specific environmental variables that determine different distribution of subjective responses in field experiments, (iii) determination of personal and contextual factors affecting in-domain and cross-domain relation between objective and subjective votes, (iv) evaluation of the relation between subjective scales, with specific focus on individual vs group ratings. Monitoring and modelling occupants' behavior concerning the interaction with the building envelope and the building energy systems in the short, mid, and long term. In collaboration with Purdue University (Prof. Athanasios Tzempelikos), IUAV University of Venice (Prof. Francesca Cappelletti), University of Trento (Prof. Alessandro Prada) and members of IEA-EBC Annex 79 [1, 3-4, 13-25].

- *Wearable sensors for the assessment of thermal comfort*

  Experimental investigation on the use of wearable sensors to monitor skin temperature and predict thermal comfort under dynamic operating conditions. Use of thermal manikin to simulate heat exchanges in dry and sweating modes. In collaboration with professors from unibz (Prof. Michael Haller and Prof. Niko Münzenrieder).

Past research activity

- *Sound insulation of timber buildings*

  Laboratory testing and modeling of sound insulation properties of lightweight timber structures (mass timber, timber frame). Characterization of vibration reduction indices for Cross Laminated

Timber (CLT) junctions with different connection systems, including distributed and point connectors. Evaluation of the acoustic performance of resilient interlayers under different static loads and connection systems. Modelling of flanking transmission in mixed timber junctions and analysis of the applicability of the EN 12354 calculation method. In collaboration with CSTB (Dr. Catherine Guigou), University of Bologna (Prof. Massimo Garai, Prof. Luca Barbaresi), University of Padua (Prof. Antonino Di Bella), University of Ferrara (Prof. Patrizio Fausti) and CNR IBE (Dr. Andrea Polastri, Dr. Daniele Casagrande) [7, 12, 27-28, 32-39, 41-42].

- *Vibroacoustic analysis of timber elements*

  Vibroacoustic analysis of CLT plates to gain understanding of (i) the transition from modal to diffuse vibrational field for modelling applications, (ii) the identification of the most suitable methods to measure dispersion relations in CLT plates, (iii) the determination of variability of dispersion curves of CLT plates related to a different composition of the constituent layers. Use of imaging techniques for the detection of water uptake in wood elements. In collaboration with University of Ferrara (Prof. Fausti), INRIM (Dr. Alessandro Schiavi and Dr. Andrea Prato), the University of Sherbrooke (Prof. Patrice Masson and Prof. Nicolas Quaegebeur) and the Hochschule Mittweida (Prof. Jorn Hübelt) [5-6, 26, 30-31].

- *Sonic crystal noise barriers*

  Investigation on sound propagation through periodic arrays of scatterers to be used as noise barriers. Analytical and numerical investigation (Plane Wave Expansion method, Multiple Scattering Theory and FEM analysis) on optimized lattices' configurations. Validation of the performance of the sonic crystal through experimental measurements (measurement protocol as in EN 1793-6 and in anechoic chamber) aimed at identifying respectively the standardized SI/RI indices and the insertion loss, with further quantification of the exponential decay of the sound field inside the array (evanescent modes). In collaboration with the University of Bologna (Prof. Massimo Garai, Prof. Alessandro Marzani) [9, 45, 48-49].

- *Acoustics of Historical Italian Opera Houses*

  Measurement campaign on 11 Historical Italian Opera Houses aimed at studying common acoustic features and at verifying the consistency of the distribution of energy ratios across space in relation to the existing literature on performance spaces. Numerical simulations (hybrid virtual sources/ray tracing methods) of the sound field inside the theatres to refine the estimate of early reflections and to identify improvement measures for contemporary uses. Vibroacoustic analysis of the vaults to estimate risk damage related to the use of PA systems. Development of an envelope-based method to determine the

early decay time from impulse responses and validation of its perceptual relevance against ISO 3382 criteria by means of listening tests. Analysis of the contribution of the sound radiation from historical wood stages and of their relevance for the listening experience of the audience and the musicians. In collaboration with the University of Bologna (Prof. Massimo Garai, Dr. Dario D'Orazio) [8, 10, 11, 40, 43-44, 46-47, 50].

Research projects

- Co-Investigator of the project ISOUL – "immersive SOUnd Lab", PI Prof. Andrea Gasparella, for the creation of an infrastructure for multidisciplinary studies on sound, acoustics, sound interaction and language, with a specific focus on the user's interaction with the environment. Funded by internal unibz infrastructure funds (Infra2024). Budget: 103'731 EUR.

Publications

Scopus bibliometric indexes (updated February 2025)

- Number of documents: 38
- Citations: 370
- H-index: 11

ORCID: http://orcid.org/0000-0001-5071-7198
Scopus AI: 56797863200

Journal articles in refereed academic journals

[1] Donges J., Morandi F., Prada A., Cappelletti F. and Gasparella A. 2024. Occupants' interaction with building services: Development of a camera-based method for detailed monitoring of windows, shadings, and lights. Building and Environment 248, 111078. https://doi.org/10.1016/j.buildenv.2023.111078

[2] Battini F., Pernigotto G., Morandi F., Gasparella A. and Kämpf J.H. 2023. Assessment of subsidization strategies for multi-objective optimization of energy efficiency measures for building renovation at district scale. Energies 16(15), 5780. https://doi.org/10.3390/en16155780

[3] Pittana I., Morandi F., Cappelletti F., Gasparella A. and Tzempelikos A. 2023. Within- and cross-domain effects of environmental factors on students' perception in educational buildings. Science and Technology for the Built Environment https://doi.org/10.1080/23744731.2023.2239080

[4] Arpan L., Rissetto R., Yan Z., Roetzel A., Azar E., Jazizadeh F., Morandi F., Zhu Y., Heydarian A., Bourikas L., Huebner G. and Gasparella A. 2022. The hopeful expect to be comfortable: Exploring emotion and personal norms related to sustainable

buildings in the United States. Energy Research & Social Science 93, 102846. https://doi.org/10.1016/j.erss.2022.102846

[5] Morandi F., Santoni A., Fausti P. and Garai M. 2022. Determination of the dispersion relation in cross-laminated timber plates: Benchmarking of time- and frequency-domain methods. Applied Acoustics 185, 108400. https://doi.org/10.1016/j.apacoust.2021.108400

[6] Morandi F., Prato A., Barbaresi L. and Schiavi A. 2020. On the diffuseness of the vibrational field of a cross-laminated timber plate: Comparison between theoretical and experimental methods. Applied Acoustics 159, 107104. https://doi.org/10.1016/j.apacoust.2019.107104

[7] Morandi F., De Cesaris S., Garai M. and Barbaresi L. 2018. Measurement of flanking transmission for the characterisation and classification of cross laminated timber junctions. Applied Acoustics 141, 312-222. https://doi.org/10.1016/j.apacoust.2018.07.009

[8] D'Orazio D., De Cesaris S., Morandi F. and Garai M. 2018. The aesthetics of the Bayreuth Festspielhaus explained by means of acoustic measurements and simulations. Journal of Cultural Heritage. https://doi.org/10.1016/j.culher.2018.03.003

[9] Morandi F., Miniaci M., Marzani A., Barbaresi L. and Garai M. 2016. Standardised acoustic characterisation of sonic crystals noise barriers: Sound insulation and reflection properties. Applied Acoustics 114, 294-306. https://doi.org/10.1016/j.apacoust.2016.07.028

[10] De Cesaris S., D'Orazio D., Morandi F. and Garai M. 2015. Extraction of the envelope from impulse responses using pre-processed energy detection for early decay estimation. The Journal of the Acoustical Society of America 138 (4), 2513-2523. https://doi.org/10.1121/1.4931904

[11] Garai M., Morandi F., D'Orazio D., De Cesaris S. and Loreti L. 2015. Acoustic measurements in eleven Italian opera houses: correlations between room criteria and considerations on the local evolution of a typology. Building and Environment 94P2, 900-912. https://doi.org/10.1016/j.buildenv.2015.07.026

Proceedings of International Conferences

[12] Morandi F., Guigou-Carter C., Caniato M., Gasparella A. Sound insulation of access floors on CLT. Proc. Of Internoise 2024, Nantes, August 2024 (invited paper).

[13] Morandi F., Prada A., Pittana I., Cappelletti F., Gasparella A. An attempt to model ventilation rate in classrooms based on the measurement of relative humidity. Proc. Of Building Simulation

Applications, Bolzano, June 2024.

[14] Pittana I., Morandi F., Gasparella A., Tzempelikos A., Cappelletti F. Calibrating a clothing insulation model for thermal comfort assessment in educational buildings. Proc. Of Building Simulation Applications, Bolzano, June 2024.

[15] Morandi F., Pittana I., Cappelletti F., Tzempelikos A., Gasparella A. Distributed vs single-point measurements in field studies on visual sensation. Proc. Of IBPC, Toronto, July 2024.

[16] Pittana I., Morandi F., Gasparella A., Tzempelikos A., Cappelletti F. On clothing adaptation and its impact on thermal sensation and PMV in classrooms. Proc. Of IBPC, Toronto, July 2024.

[17] Pittana I., Morandi F., Gasparella A., Tzempelikos A., Cappelletti F. Overall comfort and satisfaction prediction models in educational building. Proc. Of IBPC, Toronto, July 2024.

[18] Sbalchiero A., Morandi F., Pernigotto G., Gasparella A. Thermal comfort and satisfaction in hospital wards in Cote d'Ivoire. Proc. Of Indoor Air, Honolulu, July 2024.

[19] Morandi F., Pittana I., Cappelletti F., Gasparella A. and Tzempelikos A. Evaluation of thermal satisfaction scales through the analysis of sensation and preference votes. Proc. of ASHRAE Winter Conference, Chicago, January 2024.

[20] Pittana I. Morandi F., Cappelletti F., Gasparella A. and Tzempelikos A. Thermal perception and satisfaction of Italian students in distance (home) learning vs face-to-face learning environments during the heating season. Proc. of CISBAT 2023, Lausanne, September 2023.

[21] Morandi F., Pittana I., Cappelletti F., Gasparella A. and Tzempelikos A. Assessing the overall indoor environmental comfort and satisfaction: evaluation of a questionnaire proposal by means of statistical analysis of responses. Proc of IAQ Conference, Athens, May 2022.

[22] Pittana I., Morandi F., Cappelletti F., Gasparella A. and Tzempelikos A. Understanding the effects of environmental factors on human perception by means of surveys and in field measurements. Proc of IAQ Conference, Athens, May 2022.

[23] Morandi F., Donges J., Pittana I., Prada A., Cappelletti F. and Gasparella A. Modeling occupants' behavior to improve the building performance simulation of classrooms. Proc. of BSA 2022, Bolzano, June 2022.

[24] Pittana I., Morandi F., Cappelletti F., and Gasparella A. Investigating the quality of the correlation between indoor environmental factors and human perception. Proc. of the International High Performance Buildings Conference at Purdue, West Lafayette (Indiana, US), July 2022.

[25] Donges J., Morandi F., Prada A., Cappelletti F. and Gasparella A. Development of a camera-based tool to monitor non-binary occupants' interaction with windows and shadings. Proc. of the International High Performance Buildings Conference at Purdue, West Lafayette (Indiana, US), July 2022.

[26] Morandi F., Gasparella A., Garai M., Quaegebeur N. and Masson P. Detection of high moisture content in multilayered timber elements by means of non-destructive imaging techniques. Proc. of Euronoise, Madeira (held online), October 2021.

[27] Morandi F., Polastri A., Casagrande D., Paoloni F., Speranza A., Chiodega M., Barbaresi L. and Gasparella A. Interaction between acoustics and structural engineering in Cross Laminated Timber buildings. Proc. of WCTE 2020. Santiago del Chile, August 2020.

[28] Morandi F., Speranza A., Chiodega M., Barbaresi L. and Gasparella A, Acoustic/structure interaction in timber buildings. Proc. of CLEM, Montevideo, November 2019.

[29] Dongellini M., Vanzini E., Morandi F., Zilic F., Calderón-Diaz J. and Morini G.L. Numerical analysis of the annual energy performance of timber buildings in Chile. Proc. of CLEM, Montevideo, 2019.

[30] Morandi F., Robin O., Barbaresi L., Garai M. Atalla N., Quaegebeur N. and Masson P. Benchmarking of methods for the identification of flexural wavenumbers in wooden plates. Proc. of ICA, Aachen, September 2019 (invited paper).

[31] Thies A., Morandi F., Barbaresi L., Garai M., Hübelt J. and Kumer N. Development of a quick and non-invasive measurement method for the extraction of the dispersion relation in CLT plates for the evaluation of the elastic parameters. Proc. of ICA, Aachen, September 2019.

[32] Di Bella A., Dall'Acqua D'Industria L., Valluzzi M.R., Pengo A., Barbaresi L., Di Nocco F. and Morandi F. Flanking transmission in CLT buildings: comparison between vibration reduction index measurements for different mounting conditions. Proc. of Internoise 2019, Madrid, June 2019.

[33] Fausti P., Santoni A., Brighenti A., Caniato M., Barbaresi L. and Morandi F. and Semprini G. Evaluation of the impact noise reduction by using thin flooring solutions Proc. of ICSV, Montreal, June 2019.

[34] Di Bella A., Granzotto N., Barbaresi L., Di Nocco F., Morandi F. and Speranza A. Flanking transmission in CLT building elements: effect of mounting conditions on sound reduction index. Proc. of ICSV, Montreal, June 2019.

[35] Speranza A., Morandi F., Barbaresi L. and Kumer N. Direct and flanking transmission in CLT buildings: on site measurements, laboratory measurements and standards. Proc. of WCTE 2018,

Seoul, August 2018.

[36] Di Bella A., Granzotto N., Quartaruolo G., Speranza A. and Morandi F. Analysis of airborne sound reduction index of bare CLT walls. Proc. of WCTE 2018, Seoul, August 2018.

[37] Barbaresi L., Morandi F., Di Nocco F., Speranza A. and Kumer N. Sound insulation and flanking transmission in CLT buildings: a comparison between experimental measurements and predictions. Proc. of Euronoise, Hersonissos (Crete), May 2018 (invited paper).

[38] Di Bella A., Mastino C.C., Barbaresi L., Granzotto N., Baccoli R. and Morandi F. Comparative study of prediction methods and field measurements of the acoustic performances of buildings made with CLT elements. Proc. of Internoise, Hong Kong, August 2017.

[39] Barbaresi L., Morandi F., Belcari J. and Zucchelli A. Optimizing the mechanical characterization of a resilient interlayer for the use in timber construction. Proc. of ICSV24, London, July 2017.

[40] Garai M., De Cesaris S., D'Orazio D. and Morandi F. Sound energy distribution in Italian historical theatres. Proc. of Meetings on Acoustics 28, ICA 2016, Buenos Aires, September 2016. DOI: 10.1121/2.0000434.

[41] Barbaresi L., Morandi F., Garai M. and Speranza A. Experimental measurements of flanking transmission in CLT structures. Proc. of Meetings on Acoustics 28, ICA 2016, Buenos Aires, September 2016. DOI: 10.1121/2.0000433.

[42] Speranza A., Barbaresi L. and Morandi F. Experimental analysis of flanking transmission of different connection systems for CLT panels. Proc. of WCTE 2016, Vienna, August 2016.

[43] Garai M., D'Orazio D., De Cesaris S. and Morandi F. An attempt to rank Italian historical opera houses; considerations about measurement in eleven theatres. Proc. of ISTD-07, Tokyo, November 2015.

[44] Morandi F., De Cesaris S., D'Orazio D. and Garai M. Energy criteria in Italian historical opera houses: a survey over 11 theatres. Proc. of Auditorium Acoustics, Paris, October 2015.

[45] Garai M., Guidorzi P. and Morandi F. Sound reflection and sound insulation measurement on a sonic crystal noise barrier according to the new European methodology. Proc. of Internoise 2015, San Francisco, August 2015 (invited paper).

[46] Garai M., D'Orazio D., De Cesaris S., Morandi F. and Ito K. The acoustics of Bayreuth Festspielhaus. Proc. of ICSV22, Florence, July 2015.

[47] De Cesaris S., Morandi F., Loreti L., D'Orazio D. and Garai M. Notes about the early to late transition in Italian theatres. Proc.

of ICSV22, Florence, July 2015.

[48] Morandi F., Guidorzi P., Miniaci M., Marzani A. and Garai M. Acoustic measurements on sonic crystal barriers. Proc. of 6th IBPC, Turin, June 2015.

[49] Morandi F., De Cesaris S., Miniaci M., Marzani A. and Garai M. Experimental evidence of band gaps in periodic structures. Proc. of Euronoise 2015, Maastricht, June 2015 (invited paper).

[50] Morandi F., D'Orazio D., De Cesaris S., Barbaresi L. and Garai M. Sound radiation from stages in the theatres of Cesenatico and Longiano. Proc. of AIA-DAGA International Conference, Meran, March 2013.

Further data

Presentation at scientific conferences over the past 5 years

- Internoise 2024, Nantes, 25-29.08.2024.
- Building Simulation Applications, Bolzano, 26-28.06.2024.
- ASHRAE Winter Conference, Chicago, 20-24.01.2024.
- Forum Acusticum 2023, Torino, 11-15.09.2023.
- Building Simulation Applications, Bolzano, 29.06-01.07.2022.
- IAQ ASHRAE Meeting, Athens, 4-6.05.2022.
- Euronoise Conference, Madeira (online), 25-27.10.2021.
- CLEM Conference, Montevideo, 18-20.11.2019.
- International Conference on Acoustics, Aachen, 9-13.09.2019.
- Building Simulation Applications, Bolzano, 19-21.06.2019.

Session chair at national and international conferences

- Chair of the session "Acoustics of Wooden Buildings" at Internoise 2024 (25-29 August 2024, Nantes) with Jean-Luc Kouyoumji.
- Chair of the session "A03-02 Sound insulation in wooden construction" at Forum Acusticum 2023 (Torino, 11-15 September 2023, Torino) with Stefan Schoenwald.
- Chair of the sessions "Acoustic Simulation" and "Acoustic Simulation II" at the BSA Conference (Bolzano, 29 June-1 July 2022) with Gino Iannace and Edoardo Alessio Piana respectively.
- Chair of the session "Sound Insulation of timber Buildings" at Euronoise 2021 (Madeira – held online, 25-27 October 2021) with Christian Simmons.
- Chair of the sessions "Arquitectura en madera e industrialización de la construcción" and "Estructuras de madera" at the CLEM conference (Montevideo, 18-20 November 2019).
- Chair of the session "Sound Insulation in Wooden Construction" at

ICA 2019 (Aachen, 9-13 September 2019) with Berndt Zeitler.

- Chair or co-chair of structured sessions at national conferences on acoustics: AIA 2016, 2017, 2019, 2021.

Language competences

ITALIAN: first language

ENGLISH: Writing C1, Speaking C1

GERMAN: Writing B2, Speaking B2

SPANISH: Writing B1, Speaking B1

Digital skills

General: Microsoft Office (Power Point, Word, Excel)

Scientific writing: LaTeX

Cad: AutoCAD, Rhinoceros

Parametric design: Grasshopper

Scientific coding: Matlab

FEM: Comsol Multiphysics

Acoustic simulation: Odeon, EASE Evac

Sound editor: Reaper

Bologna, 07.10.2025

Federica Morandi