

Giulia Fratoni

Pubblicazioni su riviste internazionali (peer review)

1. **Fratoni G.**, & D'Orazio D. (2025). Boundary conditions for wave-based simulations in a rectangular environment with sound-absorbing ceiling, *Applied Acoustics (Forum Acusticum 2023 Special Issue)* 240, 110933.
2. Tardini V., **Fratoni G.**, & D'Orazio D. (2025). Survey of national target values on classroom acoustics, *Building and Environment*, 113299.
3. **Fratoni G.**, De Salvio D., Tardini V., Garai M., Valdiserri P., Biserni C., D'Orazio D., Student Activity in Suboptimal Thermal and Acoustic Conditions: An In-Field Study in Active Classrooms, *Applied Sciences*, 15(6), 3119.
4. D'Orazio D., **Fratoni G.**, & Tardini V. (2025). The Italian Standard on Classroom Acoustics UNI 11532-2:2020 explained through case studies, *Applied Acoustics* 231, 110498.
5. **Fratoni G.**, Tenpierik M., Turrin M., Garai M., & D'Orazio D. (2025). Acoustic performance of multi-resonator screens in a virtually reconstructed open-plan office, *Applied Acoustics* 229, 110381.
6. **Fratoni G.**, D'Orazio D., Ducceschi M., & Garai M. (2024). Acoustic analysis of a well-preserved Renaissance music space: the Odeo Cornaro in Padua, *Acta Acustica* 8, 25.
7. **Fratoni G.**, Garai M., & D'Orazio D. (2023). Assessment of modal density and free path distribution in central-planned halls. *The Journal of the Acoustical Society of America*, 154(6), 3604-3614.
8. **Fratoni G.**, Hamilton B., & D'Orazio D. (2022). Feasibility of a finite-difference time-domain model in large-scale acoustic simulations. *The Journal of the Acoustical Society of America*, 152(1), 330-341.
9. Cingolani M., Fusaro G., **Fratoni G.**, & Garai M. (2022). Influence of thermal deformations on sound absorption of three-dimensional printed metamaterials. *The Journal of the Acoustical Society of America*, 151(6), 3770-3779.
10. Cingolani M., **Fratoni G.**, Barbaresi L., D'Orazio D., Hamilton B., & Garai M. (2021). A trial acoustic improvement in a lecture hall with MPP sound absorbers and FDTD acoustic simulations. *Applied Sciences*, 11(6), 2445.
11. D'Orazio D., **Fratoni G.**, & Garai M. (2020). Enhancing the strength of symphonic orchestra in an opera house. *Applied Acoustics*, 170, 107532.
12. D'Orazio D., **Fratoni G.**, Rovigatti A., & Garai M. (2020). A virtual orchestra to qualify the acoustics of historical opera houses. *Building Acoustics*, 27(3), 235-252.
13. **Fratoni G.** (2020). The Sound of a Monumental Architecture. *Canadian Acoustics*, 48(2).
14. D'Orazio D., **Fratoni G.**, Rossi E., & Garai M. (2020). Understanding the acoustics of St. John's Baptistery in Pisa through a virtual approach. *Journal of Building Performance Simulation*, 13(3), 320-333.
15. **Fratoni G.**, D'Orazio D., & Barbaresi L. (2019). Acoustic comfort in a worship space made of cross-laminated timber. *Building Acoustics*, 26(2), 121-138.

16. D’Orazio, D., **Fratoni, G.**, & Garai, M. (2017). Acoustics of a chamber music hall inside a former church by means of sound energy distribution. *Canadian Acoustics*, 45, 7-17.

Atti di convegni internazionali

1. Ducceschi, M., Webb, C., & **Fratoni G.** (2025) Efficient synthesis of large room impulse responses in the modal domain, I3DA 2025, 10-12 settembre.
2. Tardini V., **Fratoni G.**, & D’Orazio D. (2025) National Standards on Classroom Acoustics: Key Descriptors and Global Perspectives, *in revisione presso la rivista POMA*.
3. **Fratoni, G.** & D’Orazio, D., (2025) Optimizing Acoustic Privacy in Open-Plan Offices: A Simulation-Based Study of Desk Partition Designs and Material Choices, Forum Acusticum Eurnoise 2025 (FA2025), Malaga, 23-26 giugno.
4. **Fratoni, G.** & D’Orazio, D., (2025) Input data for room acoustic simulations: ray-based vs hybrid models of a rectangular room, Forum Acusticum Eurnoise 2025 (FA2025), Malaga, 23-26 giugno.
5. **Fratoni, G.** & D’Orazio, D., (2025) Acoustic Influence of Multi-Resonator Screens on Speech Signals in a Virtual Open-Plan Office, ASA/ICA meeting, New Orleans, 18-23 maggio.
6. **Fratoni, G.** & D’Orazio, D., (2024) Exploring sound diffusion in learning environments through experimental and wave-based analysis. INTER-NOISE and NOISE-CON Congress and Conference Proceedings 270 (6), 5641-5648.
7. **Fratoni, G.**, De Salvio, D., & D’Orazio. (2024) Virtual assessment of phone booths' acoustic performance in laboratory and office environments. INTER-NOISE and NOISE-CON Congress and Conference Proceedings 270 (6), 5668-5675.
8. Tardini, V., **Fratoni, G.**, Nora, A., Malatesta, P., Fiordi, R., Cappellini, L., Tarantino, M., & D’Orazio. (2024) Acoustic design of an innovative classroom: the Piscopia Corner in Milan. INTER-NOISE and NOISE-CON Congress and Conference Proceedings 270 (4), 7456-7465.
9. **Fratoni, G.** & D’Orazio, D., (2024) How can desks and ceilings influence room acoustic criteria in classrooms? Findings from measurements and wave-based simulations, ASA Meeting, Ottawa, 13-17 maggio.
10. **Fratoni, G.**, D’Orazio, D., & Garai, M. (2023) Uncertainty of input data for wave-based room acoustic simulations in large non-trivial environments. Forum Acusticum (FA), Torino, 11-15 settembre.
11. **Fratoni, G.**, D’Orazio, D., Barbaresi, L., Garai, M., & Cappellini, L. (2023, February). Mixing materials in false ceilings to increase sound diffusion in education spaces. In INTER-NOISE and NOISE-CON Congress and Conference Proceedings (Vol. 265, No. 2, pp. 5002-5006). Institute of Noise Control Engineering.
12. De Salvio, D., **Fratoni, G.**, D’Orazio, D., & Garai, M. (2023, February). Assessing human activity noise in workspaces using machine learning and numerical models. In INTER-NOISE and NOISE-CON Congress and Conference Proceedings (Vol. 265, No. 2, pp. 5259-5269). Institute of Noise Control Engineering.

13. **Fratoni, G.**, D'Orazio, D., Ducceschi, M., & Garai, M. (2022). The coupled rooms of Odeo Cornaro (1534) as support for Renaissance musicians and soloists. Proc. of the 24° International Congress on Acoustics, 617-624, Gyeongju (Corea), 24-28 ottobre.
14. Cingolani, M., Fusaro, G., Garai, M., **Fratoni, G.**, D'Orazio, D., & Barbaresi, L. (2022). MPP sound absorbers investigation to optimize a lecture hall speech intelligibility. Proc. of the 24° International Congress on Acoustics, 267-273, Gyeongju (Corea), 24-28 ottobre.
15. **Fratoni, G.**, D'Orazio, D., Ducceschi, M., & Garai, M. (2022). Acoustic analysis of a well-preserved Renaissance music space: the Odeo Cornaro in Padua. 2° International Symposium on The Acoustics of Ancient Theatres, Verona, 6-8 luglio.
16. D'Orazio, D., **Fratoni, G.** (2022). The Loggia Cornaro (1524) as a bridge between the ancient and the modern theatre. 2° International Symposium on The Acoustics of Ancient Theatres, Verona, 6-8 luglio.
17. **Fratoni, G.**, Hamilton, B., & D'Orazio, D. (2021, September). Rediscovering the Acoustics of a XII-Century Rotunda through FDTD Simulation. In 2021 Immersive and 3D Audio: from Architecture to Automotive (I3DA) (pp. 1-8). IEEE.
18. **Fratoni, G.**, D'Orazio, D., De Salvio, D., & Garai, M. (2021). Acoustical comfort in university lecture halls: simulating the dynamic role of occupancy. Proceedings of the 17th IBPSA, Bruges, Belgium, 1-3.
19. **Fratoni, G.**, D'Orazio, D., Rossi, E., & Rovigatti, A. (2020, December). Some Considerations on Sound Propagation in a Cylindrical Worship Space. In Forum Acusticum (pp. 1905-1906).
20. D'Orazio, D., **Fratoni, G.**, & Rossi, E. (2020, December). Improving the acoustic quality of a food court by using rate spatial decay. In Forum Acusticum (pp. 3053-3054).
21. **Fratoni G.**; Rovigatti A.; Garai M., An attempt to rank Italian historical opera houses based on numerical simulations, in Proceedings of 4th Building Simulation Applications Conference BSA 2019, Bolzano, BU Press, 2020, 1, pp. 157 – 164.
22. D'Orazio, D., **Fratoni, G.**, & Garai, M. (2019). Overhead stage canopies in a coupled volume theatre: Effects on the sound energy distribution and on the secondary reverberation. The Journal of the Acoustical Society of America, 146(4), 2802-2802.
23. Hamilton, B., Newton, M. J., **Fratoni, G.**, & D'Orazio, D. (2019, September). On the acoustics of St Cecilia's hall: Measurements and comparison of wave-based and geometrical acoustics modelling. In International Symposium on Room Acoustics.
24. D'Orazio, D., **Fratoni, G.**, Rovigatti, A., & Hamilton, B. (2019). Numerical simulations of Italian opera houses using geometrical and wave-based acoustics methods (pp. 5994-5996). Universitätsbibliothek der RWTH Aachen.
25. Rovigatti, A., Rossi, E., **Fratoni, G.**, D'Orazio, D., & Garai, M. (2019). A Virtual Acoustic Restitution of St John's Baptistery in Pisa. Universitätsbibliothek der RWTH Aachen.
26. **Fratoni, G.**, D'Orazio, D., De Salvio, D., & Garai, M. (2019). Predicting speech intelligibility in university classrooms using geometrical acoustic simulations. Proceedings of the 16th IBPSA, Rome, Italy, 2-4.

Pubblicazioni su riviste nazionali

1. Nora, A., **Fratoni, G.**, D'Orazio, D., & Barbaresi, L. (2024). Progettazione integrata con cambio di destinazione d'uso di un'aula universitaria per l'ottimizzazione del comfort acustico secondo i CAM. *Rivista italiana di acustica*: 1, 2024, 29-38.
2. Fusaro, G., Cingolani, M., **Fratoni, G.**, Garai, M., & Barbaresi, L. (2022). Implementazione multi-fisica fem per prototipazione di metamateriali acustici. In *Atti AIA 2022* (pp. 1-2).
3. **Fratoni, G.**, & D'Orazio, D. (2018) Incremento dell'intelligibilità del parlato in un'aula mediante installazione di sistemi line array, *Rivista Italiana di Acustica* Vol. 41 , N. 4, pp. 27-39.
4. D'Orazio, D., **Fratoni, G.**, & Garai, M. (2017). Acoustic design of a multipurpose hall inside a former church. *IN_BO. Ricerche e progetti per il territorio, la città e l'architettura*, 8(11), 570-582.

Tesi di dottorato

Fratoni, G. (2021). Standardization of procedures and calculation models for the numerical simulation of acoustics of enclosed spaces. Ph.D. dissertation, University of Bologna.

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