

# Proceedings of Forum Acusticum 2023

## 10th Convention of EAA

Edited by  
Arianna Astolfi, Francesco Asdrubali and Louena Shtrepi



Chair: **Arianna Astolfi**  
Politecnico di Torino (Italy)

Co-Chair: **Francesco Asdrubali**  
Roma Tre University (Italy)



forum **acusticum** 2023



**10<sup>th</sup> Convention of the European Acoustics Association**

**Turin, Italy | 11<sup>th</sup> - 15<sup>th</sup> September 2023**

ISSN 2221-3767  
ISBN 978-88-88942-67-4

## Organizing Committee

### Congress Chair

Arianna Astolfi (Politecnico di Torino)

### Congress Co-Chair

Francesco Asdrubali (Roma TRE University)

### EAA Summer School Chair

Louena Shtrepi (Politecnico di Torino)

### EAA Summer School Co-Chair

Dr. Iván Herrero-Durá (Bertrandt Group Germany)

### Young Acoustician Network

Giuseppina Emma Puglisi (Politecnico di Torino)

### Technical visits

Alessio Carullo (Politecnico di Torino)

Fabrizio Riente (Politecnico di Torino)

### Social program

Marco Masoero (Politecnico di Torino)

### Treasurer

Francesca Pedrielli (National Research Council of Italy)

## International Advisory Board

Eleonora Carletti

Belén Casla Herguedas

Dick Botteldooren

Antonino Di Bella

Patrizio Fausti

André Fiebig

Maarten Hornikx

Jian Kang

Jean Kergomard

Paul Lepper

Luigi Maffei

Jorge Patricio

Antonio Perez-Lopez

Boaz Rafaely

Birgit Rasmussen

Monika Rychtáriková

Teresa Carrascal

Brigitte Schulte-Fortkamp

Michael Taroudakis

Michael Vorländer

Manell Zakharia

Karolina Jaruszewska

### Organized by

CENTRO CONGRESSI INTERNAZIONALE S.R.L.

Venue: Politecnico di Torino Italy

### Proceedings of Forum Acusticum 2023: 10th Convention of EAA

ISSN 2221-3767

ISBN 978-88-88942-67-4

© European Acoustics Association 2023

## Theme Organizers

Francesco Aletta  
Fabienne Anfosso  
Francesco Asdrubali  
Luca Barbaresi  
Stefan Becker  
Pasquale Bottalico  
Andrea Caiti  
Roberto Camussi  
Vasileios Chatziioannou  
Jordan Cheer  
Lynda Chehami  
Doriana Dal Palù  
Nico F. Declercq  
Michele Ducceschi  
Giovanni Durando  
Angelo Farina  
Filippo Fazi  
Efren Fernandez-Grande  
Andre Fiebig  
Jacopo Fogola  
José Roberto de França Arruda  
Marco Gamba  
Massimo Garai  
Paolo Gardonio  
Roberto Gavioso  
Taylor Hersh  
Inga Holube  
Maarten Hornikx  
Eric Hunter  
Luc Jaouen

Karolina Jaruszewska  
Tim Juergens  
Jian Kang  
Gaetano Licitra  
Sergio Luzzi  
Luigi Maffei  
Piotr Majdak  
Francesco Martellotta  
Manuel Melon  
John Mourjopoulos  
Papatya Nur Dökmeci Yörükoğlu  
Dario D'Orazio  
Judicaël Picaut  
Francesco Pompoli  
Nicola Prodi  
Boaz Rafaely  
Laura Rossi  
Olga Sambataro  
Andrea Santoni  
Alessandro Schiavi  
Stefan Schoder  
Stefan Schoenwald  
Brigitte Schulte-Fortkamp  
Patrick Susini  
Michael Taroudakis  
Lamberto Tronchin  
Michael Vorländer  
Anna Warzybok  
Ingo Witew  
Enrico Zovato.

## Session Chairs

Agerkvist Finn  
Ahrens Axel  
Aichinger Philipp  
Aletta Francesco  
Alsina-Pagès Rosa Maria  
Alujević Neven  
Amiryarahmadi Nata  
Anfosso Ledee Fabienne  
Antonacci Fabio  
Arenas Jorge P.  
Arend Johannes M.  
Arnela Marc  
Ascari Elena  
Asdrubali Francesco  
Asensio César  
Aspöck Lukas  
Astolfi Arianna  
Aumond Pierre  
Avallone Francesco  
Balint Jamilla  
Barbaresi Luca  
Bartalucci Chiara  
Becker Stefan  
Belanger Zackery  
Beldam Mai-Britt  
Bellucci Patrizia  
Bentahar Mourad  
Bluyssen Philomena M.  
Bottalico Pasquale  
Botteldooren Dick  
Bracciali Andrea  
Brinkmann Fabian  
Budnik Maximilian  
Can Arnaud  
Cantor-Cutiva Lady Catherine  
Carrascal Teresa  
Casari Paolo  
Chabassier Juliette  
Cheer Jordan  
Chehami Lynda  
Clairbois Jean-Pierre  
Cobos Maximo  
Colangeli Claudio

ConterMarco  
Cueto Jose Luis  
Czwielong Felix  
D'Alessandro Francesco  
D'Orazio Dario  
Dal Borgo Mattia  
Dal Palù Doriana  
Dalmont Jean-Pierre  
Dauchez Nicolas  
de Paola Elisa  
De Roeck Wim  
De Salvio Domenico  
Declercq Nico F.  
Delfs Jan  
Dellatorre Luca  
Delle Monache Stefano  
Demartsev Vlad  
Deu Jean-Francois  
Di Bella Antonino  
Di Marco Alessandro  
Dobrucki Andrzej  
Doclo Simon  
Dokmeci Yorukoglu Papatya Nur  
Dong Hefeng  
Dosso Stan E.  
Dragna Didier  
Drioli Carlo  
Ducceschi Michele  
Dupont Samuel  
Enda Murphy  
Engel Margret  
Ernault Augustin  
Evrard Anne-Sophie  
Farina Angelo  
Fausti Patrizio  
Favaro Livio  
Fazi Filippo  
Fels Janina  
Fernandez-Grande Efren  
Ferrari Vittorio  
Fiala Péter  
Fiebig André  
Flaherty Mary

Fogola Jacopo  
Fratoni Giulia  
Fredianelli Luca  
Friard Olivier  
Gamba Marco  
Gamper Hannes  
Garai Massimo  
Garcia de Miguel Alberto  
Gardonio Paolo  
Gavioso Roberto  
Geronazzo Michele  
Ghandchi Tehrani Maryam  
Gonzalez Sebastian  
Groby Jean-Philippe  
Grosso Andrea  
Guasch Oriol  
Guigou-Carter Catherine  
Hohmann Volker  
Holube Inga  
Hongisto Valtteri  
Honzik Petr  
Hunter Eric J.  
Hyland Bruno Julia  
Iemma Umberto  
Ih Jeong-Guon  
Ishikawa Keiko  
Jackson Philip  
Jadoul Yannick  
Jaouen Luc  
Jaunet Vincent  
Jeong Cheol-Ho  
Jesus Sergio  
Jürgens Tim  
Kahle Eckhard  
Kaltenbacher Manfred  
Kang Jian  
Katz Brian FG  
King Eoin A  
Kirby Tim  
Kouroussis Georges  
Kreiman Jody  
Kressner Abigail Anne  
Kropp Wolfgang

## Session Chairs

Langfeldt Felix  
Lavandier Mathieu  
Le Carrou Jean-Loïc  
Le Courtois Florent  
Leclère Quentin  
LeGriffon Ingrid  
Letourneaux Fabien  
Licitra Gaetano  
Lissek Hervé  
Lotton Pierrick  
Luizard Paul  
Luzzi Sergio  
Lyberg Åhlander Viveka  
Mäder Marcus  
Maffei Luigi  
Maillet Amandine  
Majdak Piotr  
Mancinelli Matteo  
Martellotta Francesco  
Masullo Massimiliano  
Maxit Laurent  
Mayr Andreas R.  
McCreery Ryan  
Melon Manuel  
Mietlicki Fanny  
Miniaci Marco  
Misdariis Nicolas  
Möller Henrik  
Monson Brian  
Morandi Federica  
Moschioni Giovanni  
Moshona Cleopatra  
Müller-Giebeler Mark  
Murphy Damian  
Naghbolhosseini Maryam  
Neher Tobias  
Nocke Christian  
Noisternig Markus  
Nolan Mélanie  
Novak Antonin  
Oberman Tin  
Ozcan Elif  
Pailhas Yan

Pallas Marie-Agnès  
Papale Elena  
Payne Sarah  
Petiot Jean-Francois  
Petroccia Roberto  
Picalini Lorenzo  
Pieren Reto  
Pietrowicz Mary  
Piotrowska Magdalena  
Pisello Anna Laura  
Polack Jean-Dominique  
Pompoli Francesco  
Prato Andrea  
Prodi Nicola  
Puglisi Emma Giuseppina  
Rafaely Boaz  
Rasmussen Birgit  
Reynders Edwin  
Rindel Jens Holger  
Robin Olivier  
Robinson Philip  
Rossi Laura  
Rucz Péter  
Rufer Libor  
Saitis Charalampos  
Santoni Andrea  
Savioja Lauri  
Scheuren Joachim  
Schoder Stefan  
Schoenwald Stefan  
Schulte-Fortkamp Brigitte  
Scrosati Chiara  
Secchi Simone  
Seeber Bernhard U.  
Semprini Giovanni  
Shoepfer Fabian  
Shtrepi Louena  
Smeds Karolina  
Solé Marta  
Zühre Sü Gül  
Susini Patrick  
Svensson U. Peter  
Torresin Simone

Totaro Nicolas  
Tronchin Lamberto  
Valente Daria  
Van den Berg Frits  
Van Renthergem Timothy  
Van Wieringen Astrid  
Vanhamel Jurgen  
Villot Michel  
Visentin Chiara  
Vogiatzis Konstantionos  
Vorländer Michael  
Weinzierl Stefan  
Wittstock Volker  
Wurzinger Andreas  
Yadav Manuj