

Women for Quantum - Manifesto of Values

W4Q:¹, Almut Beige³, Ana Predojević⁴, Anja Metelmann^{5,6,7}, Anna Sanpera^{8,9}, Chiara Macchiavello^{10,11}, Christiane P. Koch¹², Christine Silberhorn¹³, Costanza Toninelli^{14,15}, Dagmar Bruß¹⁶, Elisa Ercolessi^{17,18}, Elisabetta Paladino^{19,20,21}, Francesca Ferlaino^{22,23}, Giulia Ferrini²⁴, Gloria Platero²⁵, Ivette Fuentes²⁶, Kae Nemoto^{27,28}, Leticia Tarruell^{29,9}, Maria Bondani³⁰, Marilu Chiofalo³¹, Marisa Pons^{32,33}, Milena D'Angelo^{34,35}, Mio Murao³⁶, Nicole Fabbri^{14,15}, Paola Verrucchi^{37,38,39}, Pascale Senellart-Mardon⁴⁰, Roberta Citro⁴¹, Roberta Zambrini⁴², Rosario González-Férez^{43,44}, Sabrina Maniscalco⁴⁵, Susana Huelga⁴⁶, Tanja Mehlstäubler^{47,48}, Valentina Parigi⁴⁹, and Verónica Ahufinger⁵⁰

¹* **Authors by alphabetic first name order**

²**Corresponding authors:** Almut Beige (a.beige@leeds.ac.uk), Anna Sanpera (Anna.Sanpera@uab.cat), Christiane Koch (christiane.koch@fu-berlin.de), Ivette Fuentes (I.Fuentes-Guridi@soton.ac.uk), Marilu Chiofalo (marilu.chiofalo@unipi.it), Roberta Zambrini (roberta@ifisc.uib-csic.es), Valentina Parigi (valentina.parigi@lkb.upmc.fr), Sabrina Maniscalco (sabrina.maniscalco@helsinki.fi)

³The School of Physics and Astronomy, University of Leeds, United Kingdom

⁴Department of Physics, Stockholm University, Sweden

⁵Institute for Theory of Condensed Matter, Karlsruhe Institute of Technology, Germany

⁶Institute for Quantum Materials and Technology, Karlsruhe Institute of Technology, Germany

⁷ISIS, Université de Strasbourg, France

⁸Informació i Fenòmens Quàntics. Departament de Física, Universitat Autònoma de Barcelona, Spain

⁹ICREA, Institució Catalana de Recerca i Estudis Avançats, Spain

¹⁰Dipartimento di Fisica, Università degli Studi di Pavia, Italy

¹¹INFN Sezione di Pavia, Italy

¹²Dahlem Center for Complex Quantum Systems and Fachbereich Physik, Freie Universität Berlin, Germany

¹³Integrated Quantum Optics Group, Department of Physics, Institute for Photonic Quantum Systems (PhoQS), Paderborn University, Germany

¹⁴National Institute of Optics [(Consiglio Nazionale delle Ricerche CNR)–INO], Sesto Fiorentino, Italy

¹⁵European Laboratory for Non-Linear Spectroscopy (LENS), Sesto Fiorentino, Italy

¹⁶Institut für Theoretische Physik III, Heinrich-Heine-Universität Düsseldorf, Germany

¹⁷Dipartimento di Fisica e Astronomia, University of Bologna, Italy

¹⁸INFN Sezione di Bologna, Italy

¹⁹Dipartimento di Fisica e Astronomia “Ettore Majorana”, Università di Catania, Italy

²⁰INFN, Sezione di Catania, Italy

²¹CNR-IMM, UoS Università, Catania, Italy

²²Institut für Quantenoptik und Quanteninformation, Österreichische Akademie der Wissenschaften, Innsbruck, Austria

²³Universität Innsbruck, Institut für Experimentalphysik, , Austria

²⁴Wallenberg Centre for Quantum Technology, Department of Microtechnology and Nanoscience, Chalmers University of Technology, Göteborg, Sweden

²⁵Theoretical Condensed Matter Department, Materials Science Institute of Madrid (CSIC), Spain

²⁶School of Physics and Astronomy, University of Southampton, United Kingdom

²⁷Okinawa Institute of Science and Technology Graduate University, Japan

²⁸National Institute of Informatics, Tokyo, Japan

- ²⁹ICFO, Institut de Ciències Fotòniques, The Barcelona Institute of Science and Technology, Castelldefels, Barcelona, Spain
- ³⁰CNR-Institute for Photonics and Nanotechnologies, Como, Italy
- ³¹Department of Physics “Enrico Fermi”, University of Pisa, and INFN-Sezione di Pisa, Italy
- ³²EHU Quantum Center, Universidad del País Vasco, UPV/EHU, Leioa, Spain
- ³³Departamento de Física Aplicada, Universidad del País Vasco, UPV/EHU, Bilbao, Spain
- ³⁴Dipartimento Interuniversitario di Fisica, Università degli studi di Bari, Italy
- ³⁵INFN, Sezione di Bari, Italy
- ³⁶Department of Physics, Graduate School of Science, The University of Tokyo, Japan
- ³⁷Dipartimento di Fisica e Astronomia, Università di Firenze, Italy
- ³⁸Istituto dei Sistemi Complessi, Consiglio Nazionale delle Ricerche, Sesto Fiorentino, Italy
- ³⁹Istituto Nazionale di Fisica Nucleare, Sezione di Firenze, Sesto Fiorentino, Italy
- ⁴⁰Université Paris-Saclay, CNRS, Centre de Nanosciences et de Nanotechnologies, Palaiseau, France
- ⁴¹Dipartimento di Fisica "E.R.Caianiello", University of Salerno, Italy
- ⁴²Institute for Cross-Disciplinary Physics and Complex Systems (IFISC) UIB-CSIC, Campus Universitat Illes Balears, Palma de Mallorca, Spain
- ⁴³Departamento de Física Atómica, Molecular y Nuclear, Universidad de Granada, Spain
- ⁴⁴Instituto Carlos I de Física Teórica y Computacional, Universidad de Granada, Spain
- ⁴⁵University of Helsinki, Finland
- ⁴⁶Institut für Theoretische Physik und IQST, Universität Ulm, Germany
- ⁴⁷Physikalisch-Technische Bundesanstalt, Braunschweig, Germany
- ⁴⁸Institute for Quantum Optics & Laboratory for Nano- and Quantum Engineering, Universität Hannover, Germany
- ⁴⁹Laboratoire Kastler Brossel, Sorbonne Université, CNRS, ENS-Université PSL, Collège de France Paris, France
- ⁵⁰Departament de Física, Universitat Autònoma de Barcelona, Bellaterra, Spain

Data show that the presence of women in quantum science is affected by a number of detriments and their percentage decreases even further for higher positions. Beyond data, from our shared personal experiences as female tenured quantum physics professors, we believe that the current model of scientific leadership, funding, and authority fails to represent many of us. It is time for a real change that calls for a different kind of force and for the participation of everyone. Women for quantum calls for a joint effort and aims with this initiative to contribute to such a transformation.

Introduction: Who we are

Women for Quantum (W4Q) is a group of female physics professors currently mostly based in Europe but also in Japan, working in the field of AMO physics (quantum optics, atomic and molecular), quantum many-body physics, and quantum information. All of us hold tenured positions and have more than 10 years of professional experience post-PhD. We have observed numerous initiatives aimed at improving gender balance in our field and making our professional environment more welcoming to diversity. However, we find that most of these initiatives are ineffective in achieving these goals. Several facts, for the EU28 countries, confirm our observations as seen in [1]–[6]:

- In the broader field of Natural Sciences, including biology, women account for less

than 22% of full professors or equivalent research positions, (6 % in Japan) despite comprising more than 50% at the university entry level.

- In physics, the situation is even direr. Available data show that, for example, in 2021 Germany had 12% full professors in physics, while the UK had the same percentage in 2019, and Spain had 14% in 2020.
- The phenomenon of women abandoning a research career, thus widening the gender gap at every career stage (the “leaky pipeline”), is widespread.
- Participation in research funding remains very low for women.
- Women generally shoulder an excessive burden of community service (committees, evaluations, etc.) compared to their male colleagues.
- The gender pay gap in academia remains high in many countries.

These facts, combined with our shared personal experiences of uncomfortable environments for women [7], have prompted us to reconsider the current state of research practices: Who defines academic authority and how is it done? What is the present model of scientific leadership in general, and in our community in particular? How is funding of research organized? And why are research careers excessively competitive to the extent of often hindering scientific progress?

We firmly believe that the current model of scientific leadership, funding, and authority fails to represent many of us. We are convinced that it is also detrimental to our colleagues, women, men, and non-binary persons.

It is time for a real change that calls for the participation of everyone. We aim with this initiative to be a seed for such a change.

What this Manifesto of Values is about

This Manifesto outlines the values and goals we identify with. By sharing these values, we aim to initiate a dialogue and trigger new paths of doing research, thereby advancing the community as a whole. We trust that these values resonate with other members of our community, particularly those from underrepresented groups.

Values and goals

- We value acting as a community, enriched by a genuine culture of sharing and collaboration.
- We value trust, honesty and integrity.
- We value critical, curiosity-driven, and creative thinking.
- We value diversity, and believe in empowering others.
- We value the freedom to express opinions or ask questions without fear of judgment.
- We value respect and kindness in discussions and communication, regardless of hierarchy or role, in lieu of aggressive attitude.
- We value respectful language and imagery in communicating scientific results or lecturing.

- We value using words and images that have the power to transform reality, creating an inclusive and non-discriminatory, e.g. non-gender-biased, scientific community.
- We value the respect for the space of the body and the comfort of each person.

Building on these values, we aim at

- Taking an active role in transforming the way quantum science is done and valued, both for ourselves and for future generations of (quantum) scientists;
- Creating an open and welcoming space for female scientists;
- Building a participatory, inclusive and supportive scientific community, where teamwork is fostered: a community built on the concept of authority originating from the Latin ‘augere’, i. e., focused on ‘nurturing’ and ‘growing’;
- Bringing women to the forefront, which also entails redistributing power. Power is the ability to make changes, create new possibilities and participate in decision making. Power requires access to the right resources, including finances and connections. Currently, female scientists are under-represented in decision-making bodies and de-facto prevented from exerting considerable influence on decision-making processes – relegating them to the position of being the ‘female in the room’ instead of being recognized as scientists. We advocate for power and decision-making to be shared rather than concentrated. We advocate for decision making to be integrated across the entire organizational structure and in particular at high levels, prioritizing transparency and focusing on the benefit of the entire scientific community.
- Counteracting gender-bias in the scientific community. Gender-bias, including unconscious, is a well-documented phenomenon that affects the recognition and access of female scientists to financial resources, promotions, publication in high impact journals, among other areas. Our goal is to raise awareness on this phenomenon, and to enforce effective measures to address it in its various, even subtle, forms.
- Freeing our community from microaggressions, harassment, and any other degrading behaviors and practices that result in making women invisible or even just uncomfortable. Reports from many universities consistently show that women are more exposed to such discrimination and practices than the average. Additionally too many of us have personal stories or know colleagues who have experienced serious misconduct, damaging women’s careers. This misconduct ranges from belittling, to sexist comments, to actual harassment. We seek to raise awareness across the whole scientific community about the current situation and strive to put an end to it.
- Fostering, empowering, and implementing a different approach to evaluating quality in science. We believe it is crucial to assess not only the scientific output but also the process and journey leading to it. Therefore, we advocate for measures that go beyond relying solely on numerical metrics like the h-index or citation counts, also acknowledging the existence of diverse career paths. In recruitment and funding processes, we advocate for assessing capabilities in teamwork and valuing one’s ability to create a healthy scientific ecosystem, in addition to technical and managerial abilities.

We aim at achieving a true change. The first step is to acknowledge the unsatisfactory current situation of women in quantum physics. Existing measures have not enough impact.

The change we seek will benefit all under-represented communities as well as the quantum ecosystem as a whole.

Acknowledgements

We would like to thank the many colleagues from (quantum) physics and the quantum industry, in particular the (first) endorsers of our manifesto, for their support and discussions over the past years.

References

- [1] European Commission, *SheFigure2021, Gender in research and innovation : statistics and indicators from the European Commission*. 2021. [Online]. Available: <https://op.europa.eu/en/publication-detail/-/publication/67d5a207-4da1-11ec-91ac-01aa75ed71a1>.
- [2] Deutsches Physikalische Gesellschaft, Working Group on Equal Opportunities (AKC), *Statistiken zur Situation von Physikerinnen in Deutschland*. 2024. [Online]. Available: <https://www.dpg-physik.de/vereinigungen/fachuebergreifend/ak/akc/publikationen/statistiken>.
- [3] Institute of Physics (IOP), *Physics Staff in UK Universities*. 2023. [Online]. Available: <https://www.iop.org/sites/default/files/2021-12/Physics-Staff-in-UK-Universities-HESA-Data-Brief.pdf>.
- [4] Real Sociedad Española de Física GEMF, *Los datos hablan, (The data speak)*. 2024. [Online]. Available: <https://www.gemf-rsef.es/informacion/>.
- [5] Atominnen, *"Statistiken zur Situation von Physikerinnen in Deutschland"*. 2024. [Online]. Available: <https://www.atominnen.ac>.
- [6] Japan associate of National Universities, *The 20th Follow-up survey report for implementation of gender equality promotion in the national universities*, 「国立大学における男女共同参画推進の実施に関する第20回追跡調査報告書」. 2024. [Online]. Available: <https://www.janu.jp/janu/gender/>.
- [7] Ipsos, on behalf of the l'Oréal, *International study on gender equality in science conducted by Ipsos on behalf of the L'Oréal Foundation and involving 5,200 scientists in 117 countries*. 2024. [Online]. Available: <https://www.ipsos.com/en/one-two-women-scientists-say-they-have-experienced-sexual-harassment-work>.

First endorsers:

Dorit Aharonov, Hebrew University Jerusalem, Israel
Alessia Allevi, Università degli Studi dell'Insubria, Italy
Nina Amini, Laboratoire Signaux et Systèmes, Centrale Supélec, France
Janet Anders, Universität Potsdam, Germany
Marta Anguiano Millán, Universidad de Granada, Spain
Sonia Antoranz Contera, University of Oxford, UK
Myrto Arapinis, University of Edinburgh, UK
Natalia Ares, University of Oxford, UK
Alexia Auffèves, CNRS MajuLab, CQT, Singapore
Tijana Ban, Institute of Physics, Zagreb, Croatia

Mari Carmen Bañuls, Max-Planck-Institut für Quantenoptik, Garching, Germany
Stefanie Barz, Universität Stuttgart, Germany
Leni Bascones, Instituto de Ciencia de Materiales de Madrid, CSIC, Spain
Luisa Bausá, Universidad Autónoma de Madrid, Spain
Karine Beauchard, Institut de Recherche Mathématique de Rennes (IRMAR), ENS Rennes, France
Silvia Bergamini, The Open University, UK
Blanca Biel, Universidad de Granada, Spain
Kerstin Borrás, DESY and RWTH Aachen, Germany
Isabelle Bouchoule, Institut d'Optique, Palaiseau, France
Nadia Bouloufa, Laboratoire Aimé Cotton, France
Anne Broadbent, University of Ottawa, Canada
Natalia Bruno, CNR-INO and LENS, Sesto Fiorentino, Italy
Humeyra Caglayan, Tampere University, Finland
María José Calderón, Instituto de Ciencia de Materiales de Madrid ICM-MSM-CSIC, Spain
Francesca Calegari, Center for Free-Electron Laser Science, DESY, and University of Hamburg, Germany
María del Carmen Carrión Pérez, Universidad de Granada, Spain
Lucia Caspani, Università degli Studi dell'Insubria, Italy
Hilda Cerdeira, Instituto de Física Teórica, UNESP, São Paulo, Brazil
Ana María Cetto, Universidad Nacional Autónoma de México, Mexico
Caroline Champenois, PIIM, CNRS and Aix-Marseille University, France
Cecilia Clementi, Freie Universität Berlin, Germany
Maja Colautti, CNR-INO and LENS, Sesto Fiorentino, Italy
Audray Cottet, CNRS -LPENS-LPEM, France
Sarah Croke, University of Glasgow, UK
Otti D'Huys, Maastricht University, Netherlands
Irene D'Amico, University of York, UK
Virginia D'Auria, Université Côte d'Azur, INPHYNI, France
Nilanjana Datta, University of Cambridge, UK
Sandra De Jesus Raimundo, University of Southampton, UK
Thereza Cristina de Lacerda Paiva, Universidade Federal do Rio de Janeiro, Brazil
Carla De Morisson Faria, University College London, UK
Inés de Vega, IQM Quantum Computers, Germany
Krissia de Zawadzki, Universidade de São Paulo, São Carlos, Brazil
Eleni Diamanti, Sorbonne Université, France
Claudia Draxl, Humboldt Universität zu Berlin, Germany
Anaïs Dréau, Laboratoire Charles Coulomb - CNRS, France
Sara Ducci, Université de Paris Cité, Laboratoire Matériaux et Phénomènes Quantiques, France
Deborah Dultzin, Universidad Nacional Autónoma de México, Mexico
Martina Esposito, CNR-SPIN Naples, Italy
Marta P. Estarellas, Qilimanjaro Quantum Tech, Spain
Karin Everschor-Sitte, Universität Duisburg-Essen, Germany
Margarida Facao, Universidade de Aveiro, Portugal
Anita Fadavi Roudsari, Chalmers University of Technology, Sweden
Veronica Fernandez Marmol, ITEFI (CSIC), Spain
Estrella Florido, Universidad de Granada, Spain
Vivian F. França, São Paulo State University, Araraquara, Brazil

Sonja Franke-Arnold, University of Glasgow, UK
Pauline Gagnon, Indiana University, USA
Elisabetta Gallo, DESY, Germany
Gemma García Alonso, Universitat Autònoma de Barcelona, Spain
Ana García Pietro, Universidad del País Vasco, Spain
Carmen García Recio, Universidad de Granada, Spain
Laura García-Álvarez, Chalmers University of Technology, Sweden
Pascuala García-Martínez, Universitat de València, Spain
Shohini Ghose, Wilfrid Laurier University, Canada
Elisabeth Giacobino, Laboratoire Kastler Brossel, École Normale Supérieure Paris, France
Ilaria Gianani, Università di Roma 3, Italy
Noel Goddard, Qunnect, USA
Fabienne Goldfarb, Université Paris-Saclay, France
Gabriela González, Louisiana State University, USA
María Carmen Gordillo, Universidad Pablo de Olavide, Spain
Jimena D. Gorfinkiel, The Open University, UK
Rachel Grange, ETH Zürich, Switzerland
Saïda Guellati-Khélifa, Laboratoire Kastler Brossel Paris, France
Suchi Guha, University of Missouri, Columbia, USA
Montserrat Guilleumas, Universitat de Barcelona, Spain
Lucia Hackermueller, University of Nottingham, UK
Marta I. Hernández, Instituto de Física Fundamental IFF-CSIC, Spain
María Angeles Hernández Vozmediano, Institute of Materials Science of Madrid (ICMM), CSIC, Spain
Zoë Holmes, EPFL, Lausanne, Switzerland
Yanhua Hong, Bangor University, UK
Ottavia Jedrkiewicz, Università dell'Insubria, Italy
Stacey Jefferey, CWI Amsterdam and Qsoft, Netherlands
Malgosia Kaczmarek, University of Southampton, UK
Delaram Kahrobaei, The City University of New York, USA
Archana Kamal, Northwestern University, USA
Elham Kashefi, NQCC, CNRS (LIP6) and University of Edinburgh, France and UK
Ursula Keller, ETH Zürich, Switzerland
Viv Kendon, Strathclyde University, UK
Shelby Kimmel, Middlebury College, USA
Sabine Klapp, Technische Universität Berlin, Germany
Natalia Korolkova, University of St Andrews, UK
Svetlana Kotochigova, Temple University, USA
Elica Kyoseva, NVIDIA Corp., USA
Anne L'Huillier, Lund University, Sweden
Franziska Lautenschläger, Universität des Saarlandes, Germany
Cristina Lazzeroni, University of Birmingham, UK
Hanna Le Jeannic, CNRS -Laboratoire Kastler Brossel, France
Michèle Leduc, Laboratoire Kastler Brossel, École Normale Supérieure Paris, France
Inmaculada Leyva, Universidad Rey Juan Carlos, Spain
Ute Lisenfeld, Universidad de Granada, Spain
Maria Antonietta Loi, University of Groningen, Netherlands
Rosa Lopez, IFISC (UIB-CSIC), Spain
Sheila López Rosa, Universidad de Sevilla, Spain

Kathy Lüdge, Technische Universität Ilmenau, Germany
Agnes Maitre, Sorbonne Université- INSP, France
Julia Maldonado-Valderrama, Universidad de Granada, Spain
Laura Mančinska, University of Copenhagen, UK
Maria Maragkou, Riverlane, UK
Francesca Maria Marchetti, Universidad Autonoma de Madrid, Spain
Danijela Markovic, CNRS/Thales, France
Irene Marzoli, University of Camerino, Italy
Yvonne P. Mascarenhas, University of São Paulo, São Carlos, Brazil
Cristina Masoller, Universitat Politècnica de Catalunya, Spain
Benedetta Mennucci, University of Pisa, Italy
Pérola Milman, Laboratoire Matériaux et Phénomènes Quantiques, CNRS, France
Anna Minguzzi, Laboratoire de Physique et Modélisation des Milieux Condensés, France
Elisa Molinari, University of Modena e Reggio Emilia, Italy
Juliette Monsel, Chalmers University of Technology, Sweden
Arianna Montorsi, Politecnico di Torino, Italy
Giovanna Morigi, Universität des Saarlandes, Germany
Silvia Motti, University of Southampton, UK
Olga Muñoz, Instituto de Astrofísica de Andalucía, CSIC, Spain
Elke Neu-Ruffing, RPTU Kaiserslautern, Germany
Beatriz Olmos Sanchez, Eberhard-Karls-Universität Tübingen, Germany
Alicia Palacios, Universidad Autónoma de Madrid, Spain
Adriana Pálffy-Buß, Julius-Maximilians-Universität Würzburg, Germany
Nancy Paul, CNRS, Laboratoire Kastlefr Brossel, France
Isabelle Philip, University of Montpellier, France
Silvina Ponce Dawson, Universidad de Buenos Aires and CONICET, Argentina
Natacha Portier, ENS Lyon, France
Àngels Ramos, Universitat de Barcelona, Spain
Stephanie Reich, Freie Universität Berlin, Germany
Lucia Reining, Laboratoire des Solides Irradiés, École Polytechnique, France
Rebeca Ribeiro Palau, CNRS, Centre de nanosciences et de nanotechnologies, France
Monika Ritsch-Marte, Medizinische Universität Innsbruck, Austria
Isabelle Robert-Philip, Laboratoire Charles Coulomb - CNRS, France
Chiara Roda, Department of Physics, University of Pisa and INFN-Pisa, Italy
Berta Rubio Barroso, Instituto de Física Corpuscular, CSIC-Uni. Valencia, Spain
Ana Belen Sainz, University of Gdansk, Poland
Catherine Schwob, Sorbonne Université- INSP, France
Signe Seidelin, Université Grenoble Alpes, France
Irene Sendiña Nadal, Universidad Rey Juan Carlos, Spain
Ruth Signorell, ETH Zürich, Switzerland
Sudeshna Sinha, Indian Institute of Science Education and Research Mohali, India
Clivia Sotomayor Torres, International Iberian Nanotechnology Laboratory, Portugal
Janine Splettstoesser, Chalmers University of Technology, Sweden
Magdalena Stobinska, University of Warsaw, Poland
Giovanna Tancredi, Chalmers University of Technology, Sweden
Marika Taylor, University of Birmingham, UK
Sarah Thomas, Imperial College London, UK
Angela Thränhardt, Technische Universität Chemnitz, Germany
Giovanna Tissoni, Institut de Physique de Nice, France

Laura Tolos, Institute of Space Sciences (ICE-CSIC), Spain
Silvia Torres-Peimbert, Universidad Nacional Autónoma de México, Mexico
Rosa Tualle-Brouri, Institut d'Optique Graduate School, France
Elinor Twyeffort, University of Southampton, UK
Anu Unnikrishnan, ETH Zürich, Switzerland
Roser Valenti, Goethe-Universität Frankfurt, Germany
Francesca Vidotto, University of Western Ontario, Canada
Patrizia Vignolo, Institut de Physique de Nice, France
Silvia Vignolo, Max Planck Institute of Colloids and Interfaces, Potsdam, Germany
Lorenza Viola, Dartmouth College, USA
Smitha Vishveshwara, University of Illinois Urbana Champaign , USA
Valia Voliotis, Sorbonne Université, INSP, France
Lucia Votano, Istituto Nazionale di Fisica Nucleare, Italy
Stephanie Wehner, Delft University of Technology, Netherlands
Carrie Weidner, University of Bristol, UK
Ulrike Woggon, TU Berlin, Germany
Delphine Wolfersberger, Laboratoire Matériaux Optiques, Photonique et Systèmes, CentraleSupélec, France
Pauline Yzombard, Sorbonne Université, Laboratoire Kastler Brossel, France
Ilaria Zardo, Universität Basel, Switzerland
Almudena Zurita, Universidad de Granada, Spain
Magdalena Zych, Stockholm University, Sweden