

Sonia Conesa-Boj

Curriculum Vitae

Department of Quantum Nanoscience
Delft University of Technology

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🌐 [My Webpage](#)



Education

- 03/2011 **PhD in Nanoscience and Nanotechnology with grade “Cum Laude”**, *University of Barcelona, Spain.*
- 09/2008 **MSc in Nanoscience and Nanotechnology**, *University of Barcelona, Spain.*
- 09/2003 **BSc in Physics**, *University of Barcelona, Spain.*

Employment

- 10/2025 – **Full Professor**, *Faculty of Applied Sciences, Department of Quantum Nanoscience, Delft now University of Technology, and Kavli Institute of Nanoscience Delft, The Netherlands.*
- 07/2020 – **Associate Professor**, *Faculty of Applied Sciences, Department of Quantum Nanoscience, Delft 10/2025 University of Technology, and Kavli Institute of Nanoscience Delft, The Netherlands.*
- 09/2016– **Tenure-Track Assistant Professor**, *Faculty of Applied Sciences, Department of Quantum 07/2020 Nanoscience, Delft University of Technology, and Kavli Institute of Nanoscience Delft, The Netherlands.*
- 03/2016 – **Postdoctoral researcher**, *Faculty of Applied Sciences, Department of Photonics and Semicon- 09/2016 ductor Nanophysics, Eindhoven University of Technology, The Netherlands.*
- 01/2015 – **Postdoctoral researcher**, *Faculty of Applied Sciences, Department of Quantum Nanoscience, 03/2016 Delft University of Technology, and Kavli Institute of Nanoscience Delft, The Netherlands.*
- 09/2011 – **SNSF Marie Heim-Vötglin postdoctoral researcher fellow**, *Department of Material Science 12/2014 and Engineering, Laboratory of Semiconductor Materials, École Polytechnique Fédérale de Lausanne, Switzerland..*
- 03/2011 – **Postdoctoral researcher**, *Faculty of Physics, Department of Electronics, University of Barcelona, 08/2011 Spain.*

Competitive grants and fellowships

- 2026–2029 QuantERA grant, SINPHONI project, co-PI / PI at TU Delft. International collaborative grant on quantum materials and nanophotonics.
- 2023–2027 NWO Vidi award (€800K personal grant; Dutch Research Council, Netherlands).
- 2018–2023 ERC Starting Grant (€1.5M personal grant; European Research Council).
- 2018–2023 Netherlands Electron Microscopy Initiative/National Roadmap for Large-Scale Scientific Infrastructure (€17M in total, €1M for my group; Dutch Research Council, Netherlands).
- 2017–2021 TKI Top Consortium for Knowledge and Innovation (€900K, Ministry of Economy Affairs and Climate Policy, Netherlands).
- 2011–2014 SNSF Marie Heim-Vötglin postdoctoral researcher fellowship (€200K personal grant, Swiss National Science Foundation, Switzerland).

- 2009 Doctoral Mobility fellowship by the Ministry of Science and Innovation, for the realization of research stay at the Walter Schottky Institute in Munich, Germany.

Teaching activities

- 2019 – now Quantum Mechanics I (BSc course in Applied Sciences at Delft University of Technology, The Netherlands), lecturer and course coordinator. Average of 190 students per year.
- 2019 – 2022 Mathematics for Quantum Physics (Minor course in the Applied Sciences at Delft University of Technology, The Netherlands), lecturer and course coordinator. Average of 30 students per year.
- 2017 – now Electron Microscopy Characterization of the Nanoscale (MSc course in Applied Sciences at Delft University of Technology, The Netherlands), lecturer and course coordinator. Average of 15 students per year.
- 2014 – 2015 Statistical Mechanics (BSc Physics, Corpus Christi College, University of Oxford, United Kingdom), lecturer.
- 2009 – 2011 Applied Electronics (BSc Physics, University of Barcelona, Spain), teaching assistant.
- 2009 – 2011 Introduction to Electron Microscopy and Advanced Electron Microscopy (MSc course, University of Barcelona, Spain), teaching assistant.
- 2004 – 2009 Association of Teachers and Culture Professionals of Catalonia, Barcelona. Preparation for the official entry examinations of new Physics and Chemistry High School teachers in the national Spanish education system, lecturer.
- 2005 Introductory Physics course (BSc Physics), Institut Quimic de Sarria, Ramon Llull University, Barcelona, Spain, lecturer.
- 2004 – 2006 High-School Physics Teaching and Tutoring, Sant Ignasi de Sarria, Barcelona, Spain, secondary school teacher.
- 2003 – 2004 High-School Physics Teaching and Tutoring, IES L'Esperança, Barcelona, Spain, secondary school teacher.

Academic Service and Educational Management

University and Faculty Service

- 2026–present **Member, Career Development Committee (CDC)**, *Faculty of Applied Sciences (TNW)*, Delft University of Technology.
- 2023–2025 **Chair, Board of Examiners**, *BSc Applied Physics*, Faculty of Applied Sciences (TNW), Delft University of Technology.
- 2021–present **Member, Board of Examiners**, *BSc Applied Physics*, Faculty of Applied Sciences (TNW), Delft University of Technology.
- 2017–2022 **Member, Faculty Works Council / Onderdeelcommissie (OdC)**, *Faculty of Applied Sciences (TNW)*, Delft University of Technology.

Research Community Service and Scientific Advisory Roles

- 2026–2028 **Selected member, AI in Science Working Group for Materials Science**, SCIANCE / RAISE – Resource for AI Science in Europe.
- 2024–present **Member, NWO Nano, Quantum and Materials Physics (NQMP) committee**, Dutch Research Council.
- 2024–2026 **Panel committee member, NWO Vidi grant assessment committee**, Dutch Research Council.
- 2021–2023 **Panel committee member, NWO Veni grant assessment committee**, Dutch Research Council.
- 2021–present **Evaluator, ESTEEM3**, European electron microscopy infrastructure access programme.

- 2021–present **Evaluator, ELECMI**, Spanish integrated infrastructure for electron microscopy of materials.
- 2021–present **Programme committee member, SPIE Nanoscience + Engineering**, Low-Dimensional Materials and Devices conference.
- 2020 **Coordinator, NEMI Educational Platform**, online seminar and educational initiative for the Dutch electron microscopy community during the COVID-19 lockdowns.
- 2023, 2024 **Member, International Scientific Committee**, QUANTUMatter / Quantum Matter International Conference.
- 2026 **Member, International Scientific Committee**, AI4AM2026 – AI for Advanced Materials, Madrid, Spain.
- Conference and Workshop Organization**
- 2027 **Member, CLEO/Europe 2027 sub-committee**, topic area CE “Optical Materials, Fabrication and Characterisation”.
- 2027 **Organizer, Focus Session “Agentic AI for Fundamental Physics”**, Physics@Veldhoven, The Netherlands.
- 2023 **Co-organizer, “Layered 2D Optoelectronic Materials and Devices”**, MRS Spring Meeting.
- 2023 **Organizer, “Quantum Materials for Quantum Technologies: from Design to Characterization”**, Physics@Veldhoven, The Netherlands.
- 2019 **Co-organizer, “Current and Emerging Microscopy for Quantum Information Sciences”**, Microscopy and Microanalysis.

Research stays

- 08/2014–12/2014 University of Oxford, Department of Physics, United Kingdom.
- 12/2014 Brookhaven National Laboratory, Center for Functional Nanomaterials, New York, United States.
- 05/2012 Lund University, The Nanometer Structure Consortium at Lund University, Lund, Sweden.
- 05/2009–07/2009 Walter Schottky Institute, Center for Nanotechnology and Nanomaterials, Munich, Germany.
- 08/2010–09/2010 École Polytechnique Fédérale de Lausanne, Laboratory of Semiconductor Materials, Lausanne, Switzerland.

PhD Committees and Opponent Roles

Summary. PhD committees and opponent roles: 24 doctoral committee, opponent, examiner, assessor, or reserve-committee roles in total, including 8 external/international roles and 16 TU Delft / Delft-Leiden roles. These include PhD committees and examination roles at Eindhoven University of Technology, Aalto University, Leiden University, University of Basel, Université de Paris, University of Oxford, Lund University, University of Copenhagen, and Delft University of Technology.

External and international

- 2024 **PhD committee member**, Sara Ahmed Elrafey, “Monolayer Semiconductor Superlattices for Nanophotonics”, Eindhoven University of Technology, The Netherlands.
- 2023 **Preliminary examiner**, Mikko Turunen, “Engineering the Optical Properties of Two-Dimensional Semiconducting Materials”, Aalto University, Finland.
- 2022 **Doctoral committee member**, Tobias Arie de Jong, “Superlattices in van der Waals Materials: A Low-Energy Electron Microscopy Study”, Leiden University / Delft-Leiden Casimir Research School, The Netherlands.

- 2022 **Doctoral committee member**, Markus Fabian Ritter, “Gate-Tunable Superconductivity”, University of Basel, Switzerland.
- 2021 **Doctoral committee member**, Jacko Rastikian, “Experimental Investigation of Charge and Spin Transport in WSe₂ Connected with Palladium Contacts”, Université de Paris, France.
- 2020 **External examiner**, Sabrina Sterzl, “Optoelectronic Properties of Semiconductor Nanowires in the Infrared Regime”, DPhil in Physics, University of Oxford, United Kingdom.
- 2018 **Faculty opponent**, Robert Hallberg, “Aerosol Metal Nanoparticles and their Role in Particle Assisted Growth of III–V Nanowires”, Lund University, Sweden.
- 2017 **External PhD assessment committee member**, Caroline Anna Helmi Lindberg, “Growth of Ag-seeded III-V Nanowires and TEM Characterization”, University of Copenhagen, Denmark.

TU Delft

- 2026 **Doctoral committee member**, Ronja Johanna Zijdeveld, “Identification of Topology in Finite Media”, Delft University of Technology, The Netherlands.
- 2026 **Doctoral committee member**, Xiliang Yang, “Optical Nanoengineering and Strain-Defined Nanochannels in Hexagonal Boron Nitride for Single-Molecule Sensing”, Delft University of Technology, The Netherlands.
- 2026 **Doctoral committee member**, Gaia Da Prato, “Erbium Ions Integrated with Silicon Nanophotonic Structures: A Versatile Hybrid Quantum System”, Delft University of Technology, The Netherlands.
- 2026 **Doctoral committee member**, Anubhav Paul, “Advancing Optical Metrology with Coherent Fourier Scatterometry”, Delft University of Technology, The Netherlands.
- 2025 **Doctoral committee member**, Nina Codreanu, “Diamond Nanophotonic Devices for Quantum Networks Experiments”, Delft University of Technology, The Netherlands.
- 2023 **Doctoral committee member**, Sonakshi Arora, “Photonic Topological Edge States: A Nanoscale Investigation”, Delft University of Technology, The Netherlands.
- 2023 **Doctoral committee member / assessor**, Marcus L. Noordam, “Interacting Light Fields in Monolayer WS₂ and Plasmonic Systems”, Delft University of Technology, The Netherlands.
- 2022 **Doctoral committee member**, M.W.H. Garming, “Development and Application of Ultrafast Scanning Electron Microscopy”, Delft University of Technology, The Netherlands.
- 2022 **Doctoral committee member**, R. Rejali, “Building Blocks for Atomically Assembled Magnetic and Electronic Artificial Lattices”, Delft University of Technology, The Netherlands.
- 2022 **Doctoral committee member**, Thierry C. van Thiel, “Coupling Lattice, Charge and Topological Reconstructions at Oxide Interfaces”, Delft University of Technology, The Netherlands.
- 2021 **Doctoral committee member**, Iacopo Bertelli, “Magnetic Imaging of Spin Waves and Magnetic Phase Transitions with Nitrogen-Vacancy Centers in Diamond”, Leiden University / TU Delft, The Netherlands.
- 2020 **Doctoral committee member**, N. Yurttagul, “Microkelvin Nanoelectronics”, Delft University of Technology, The Netherlands.
- 2020 **Doctoral committee member**, M. Forsch, “Building Blocks for Wavelength Converters: A Study of Monolithic Devices in Piezoelectric Materials”, Delft University of Technology, The Netherlands.
- 2018 **Doctoral committee member**, Lorenzo De Angelis, “The Singular Optics of Random Light: A 2D Vectorial Investigation”, Delft University of Technology, The Netherlands.

Supervision and Mentoring

Summary. Supervision and mentoring: supervision and mentoring of 4 postdoctoral researchers, 10 PhD researchers including 5 completed PhD theses and 5 current PhD projects, 18 completed MSc thesis projects, and 10 BSc/BEP projects at Delft University of Technology since 2016. Supervised projects span electron nanoscopy, van der Waals materials, nanophotonics, strain engineering, 4D-STEM, EELS, and machine-learning-assisted microscopy.

Postdoctoral Mentoring

- 2016–2018 **Postdoctoral mentor**, Miguel Tinoco, Delft University of Technology. Current position: Assistant Professor, Complutense University of Madrid.
- 2019–2020 **Postdoctoral mentor**, Stef Smeets, Delft University of Technology. Current position: Senior Research Software Engineer, Netherlands eScience Center.
- 2019–2020 **Postdoctoral mentor**, Magdalena O. Cichocka, Delft University of Technology.
- 2021–2022 **Postdoctoral mentor**, Luigi Maduro, Delft University of Technology. Current position: Postdoctoral researcher, University of Manchester.

Completed PhD Supervision

- 2025 **PhD supervisor**, Abel Brokkelkamp, “Enhanced Nanoscale Characterization of van der Waals Materials: Combining Electron Energy-Loss Spectroscopy”, Delft University of Technology, The Netherlands.
- 2024 **PhD supervisor**, Maarten Bolhuis, “A Deep Dive into the Nano Frontier of Layered Materials: From Microscopy to 2D Materials”, Delft University of Technology, The Netherlands.
- 2024 **PhD supervisor**, Sabrya E. van Heijst, “Fingerprinting the Properties of WS₂ Nanostructures Using Advanced Transmission Electron Microscopy Techniques: From Growth to Characterization”, Delft University of Technology, The Netherlands.
- 2021 **Copromotor**, Irina Komen, “The Interaction of Light with WS₂ Nanostructures”, Delft University of Technology, The Netherlands.
- 2021 **PhD supervisor**, Luigi Maduro, “An Edgy Journey with Transition Metal Dichalcogenides: From Flakes to Nanopillars”, Delft University of Technology, The Netherlands.

Current PhD Supervision

- 2026–2030 **PhD supervisor / promotor**, Bart van der Wielen, joint PhD project with Prof. Massimiliano Rossi, Delft University of Technology, The Netherlands.
- 2025–2028 **PhD supervisor / promotor**, Onima Bisht, Delft University of Technology, The Netherlands.
- 2023–2027 **PhD supervisor / promotor**, Jeroen J. M. Sangers, Delft University of Technology, The Netherlands.
- 2022–2026 **PhD supervisor / promotor**, Christos Soukaras, Delft University of Technology, The Netherlands.
- 2022–2026 **PhD supervisor / promotor**, Daniël Muis, joint PhD project with AMOLF Photonic Forces, Delft University of Technology / AMOLF, The Netherlands.

Completed MSc Thesis Supervision

- 2026 **MSc thesis supervisor**, David Damianos, “Design and Fabrication of Si₃N₄ Photonic Crystals for Enhanced Light–Matter Interaction”, Delft University of Technology, The Netherlands.
- 2026 **MSc thesis supervisor**, Zahra Shekason, “Fabrication and Electrical Characterization of 2D TMD Field-Effect Transistors”, Delft University of Technology, The Netherlands.
- 2025 **MSc thesis supervisor**, Nicole Burg, “Exploring CVD Fabrication of Transition Metal Dichalcogenides for Nanoscrolling”, Delft University of Technology, The Netherlands.

- 2025 **MSc thesis supervisor**, Bart van der Wielen, "A Monte Carlo Approach for Background Subtraction of Core-Loss Electron Energy-Loss Spectroscopy", Delft University of Technology, The Netherlands.
- 2025 **MSc thesis supervisor**, Floris Verschuijl, "Mapping Electric Fields in Twisted 2D Materials", Delft University of Technology, The Netherlands.
- 2024 **MSc thesis supervisor**, Christina Sfetsou, "From 2D to 1D Nanostructures: Fabrication and Characterization of Rolled van der Waals Nanoscrolls", Delft University of Technology, The Netherlands.
- 2024 **MSc thesis supervisor**, Steven Lammers, "Chip Design and Development for an Integrated Photonics–Electron Microscopy Platform for Enhanced Electron Energy-Loss Spectroscopy", Delft University of Technology, The Netherlands.
- 2024 **MSc thesis supervisor**, Philip Fredriksz, "Quantitative Interpretation of Noisy Annular Dark-Field Images Using Deep Learning: Identification of Local Atomic Structures in Edge Defects of Two-Dimensional Transition Metal Dichalcogenides", Delft University of Technology, The Netherlands.
- 2023 **MSc thesis supervisor**, Jeroen J. M. Sangers, "Investigating Moiré Physics in 2D Heterostructures Using EMPAD", Delft University of Technology, The Netherlands.
- 2023 **MSc thesis supervisor**, Stijn van der Lippe, "Peak Characterization in Electron Energy-Loss Spectroscopy: Automated Analysis of Two-Dimensional Layered Materials", Delft University of Technology, The Netherlands.
- 2023 **MSc thesis supervisor**, Ruben Speijer, "Momentum-Resolved Low-Loss EELS for 2D Layered Materials", Delft University of Technology, The Netherlands.
- 2022 **MSc thesis supervisor**, Yashoda Sewnarain, "Fabrication and Structural Characterization of Sulfurized Mo/W Heterostructure Nanopillars", Delft University of Technology, The Netherlands.
- 2021 **MSc thesis supervisor**, Isabel Postmes, "Automated Analysis of Electron Energy-Loss Spectral Images", Delft University of Technology, The Netherlands.
- 2020 **MSc thesis supervisor**, Laurien I. Roest, "Charting the Low-Loss Region in Electron Energy-Loss Spectroscopy with Machine Learning", Delft University of Technology, The Netherlands.
- 2020 **MSc thesis supervisor**, Abel R. Brokkelkamp, "Selective-Area Growth of Transition Metal Dichalcogenides", Delft University of Technology, The Netherlands.
- 2020 **MSc thesis supervisor**, Triantafyllia (Rose) Sermpeniadi, "3D Focused Ion Beam Tomography", Delft University of Technology, The Netherlands.
- 2019 **MSc thesis supervisor**, Sabrya E. van Heijst, "Synthesis of Tungsten Disulfide Using Atmospheric-Pressure Chemical Vapor Deposition", Delft University of Technology, The Netherlands.
- 2019 **MSc thesis supervisor**, Maarten Bolhuis, "Synthesis of Horizontal and Vertical Molybdenum Disulfide Nanosheets Using Chemical Vapor Deposition", Delft University of Technology, The Netherlands.
- 2018 **MSc thesis supervisor**, Dave Dekker, "Mapping the Nature of Electrical Properties in Hybrid Nanowires Using Electron Microscopy", Delft University of Technology, The Netherlands.

[BSc / BEP Project Supervision](#)

- 2026 **BSc / BEP project supervisor**, Christian Martens, "Simulating Photonic-Crystal Band Diagrams and Electron Energy-Loss Spectra Using Finite-Difference Time-Domain Methods", Delft University of Technology, The Netherlands.
- 2025 **BSc / BEP project supervisor**, Alexandra Nemmaier, research exchange / BSc project, "Fabrication and Characterization of Hexagonal Boron Nitride Layers", Delft University of Technology, The Netherlands.

- 2024 **BSc / BEP project supervisor**, Batuhan Yavuz, “Optimization of Photo-Induced Exfoliation of Transition Metal Dichalcogenides”, Delft University of Technology, The Netherlands.
- 2024 **BSc / BEP project supervisor**, Ties van Griensven, “Electrochemical Exfoliation of MoS₂ Nanosheets: A Parameter Study”, Delft University of Technology, The Netherlands.
- 2022 **BSc / BEP project supervisor**, Patricia Ares, “Strain Tests in Low-Dimensional Materials: Geometrical Phase Analysis”, Delft University of Technology, The Netherlands.
- 2021 **BSc / BEP project supervisor**, Jorien van der Meulen, “Growth Methods and Characterization of Sodium Tungsten Bronze Crystals”, Delft University of Technology, The Netherlands.
- 2021 **BSc / BEP project supervisor**, Jeroen Sangers, “Analysis and Interpretation of Momentum-Resolved EELS Measurements”, Delft University of Technology, The Netherlands.
- 2020 **BSc / BEP project supervisor**, James Lin, “Determining the Mechanical Stability and Electron Energy-Loss Spectrum of MoWS₂ Using WIEN2k”, Delft University of Technology, The Netherlands.
- 2019 **BSc / BEP project supervisor**, Olivier Kuijpers, “Density Functional Theory and Its Application to Twistronics in MoS₂”, Delft University of Technology, The Netherlands.
- 2019 **BSc / BEP project supervisor**, Martijn Zwanenburg, “Determination of the Dielectric Response Function Using EELS”, Delft University of Technology, The Netherlands.

Invited Presentations

Summary. Invited presentations: 51 invited presentations in total, including 31 invited conference, workshop and school talks, and 20 invited seminars and colloquia. Highlights include 1 plenary talk at Graphene Week 2024, 1 keynote lecture at GEFES2025, an invited plenary session at NanoSpain 2026, and invited talks at NanoSpain, QUANTUMatter, SPIE Nanoscience + Engineering, AI4AM, I2DMSUMMIT, MRS, Graphene, EUROMAT and Physics@Veldhoven. Invited seminars and colloquia include Oxford, AMOLF, Leiden University, University of Amsterdam, University of Groningen, University of Copenhagen, University of Basel, Lund University and TU Delft.

Invited Conference Talks, Workshops and Schools

- 2026 **Invited speaker**, Ferro2026 – Fundamental Physics of Ferroelectrics 2026.
- 2026 **Invited speaker**, NanoSpain 2026, Spain. Invited plenary session.
- 2026 **Invited speaker**, 2D-NL Conference 2026, Eindhoven University of Technology, Eindhoven, The Netherlands.
- 2025 **Invited speaker**, AI4AM2025 – AI for Advanced Materials, San Sebastián–Donostia, Spain. Lavoisier Discussion.
- 2025 **Invited speaker**, TRILMAX / 2DMed-TRILMAX Experiment Winter School. Lecture: “TEM”.
- 2025 **Invited speaker**, I2DMSUMMIT2025 – International 2D Materials Summit, Abu Dhabi, United Arab Emirates. Workshop 6: Advanced Characterization of 2D Materials and Heterostructures. Talk: “Machine Learning from the Large Hadron Collider to van der Waals Materials”.
- 2025 **Keynote speaker**, GEFES2025, Oviedo, Spain.
- 2024 **Plenary speaker**, Graphene Week 2024, Graphene Flagship, Prague, Czech Republic.
- 2024 **Invited speaker**, Graphene 2024, Madrid, Spain.
- 2024 **Invited speaker**, NanoSpain 2024, Tarragona, Spain.
- 2024 **Invited speaker**, QUANTUMatter 2024, San Sebastián–Donostia, Spain.
- 2024 **Invited speaker**, International Workshop on 2D Heterostructures, Luxembourg.
- 2024 **Invited speaker**, International JEOL Key User Meeting, Madrid, Spain.

- 2023 **Invited speaker**, SPIE Nanoscience + Engineering, Low-Dimensional Materials and Devices 2023, San Diego, California, USA. Talk: "Unlocking Twisted 2D Materials: A Nanoscale Exploration of Bandgap Dynamics".
- 2023 **Invited speaker**, Trends in Nanotechnology Conference 2023 (TNT2023), Lyon, France.
- 2023 **Invited speaker**, Quantum Magnetic Materials, Lorentz Center Workshop, Leiden, The Netherlands.
- 2023 **Invited speaker**, European School on Advanced Materials (ESAM), Gandia, Valencia, Spain.
- 2023 **Invited speaker**, EPS Condensed Matter Division Conference (CMD30), Milan, Italy.
- 2022 **Invited speaker**, NanoSpain 2022, Madrid, Spain. Talk: "Living on the Edge: 1D van der Waals Materials by Design for Nanophotonic Applications".
- 2021 **Invited speaker**, Graphene 2021, Grenoble, France.
- 2021 **Invited speaker**, GrapheneForUS 2021, online. Talk: "From Crafting to Visualization: Low-Dimensional TMD Nanostructures under the Electron Microscope Lamppost".
- 2021 **Invited speaker**, EUROMAT 2021, online.
- 2021 **Invited speaker**, SPIE Nanoscience + Engineering, Low-Dimensional Materials and Devices 2021, online. Talk: "From Crafting to Visualisation: Low-Dimensional TMD Nanostructures under the Electron Microscope Lamppost".
- 2020 **Invited speaker**, Joint EPS Condensed Matter Division / RSEF-GEFES Meeting, online.
- 2019 **Invited speaker**, SPIE Nanoscience + Engineering, Low-Dimensional Materials and Devices 2019, San Diego, California, USA.
- 2019 **Invited speaker**, Nanofront Winter Retreat, Casimir Research School, Courchevel, France.
- 2018 **Invited speaker**, Materials Research Society Fall Meeting, Boston, USA. Talk: "Pinning Down the Structure/Performance Interplay in Nanowires with Electron Microscopy".
- 2017 **Invited speaker**, 15th International Conference on Advanced Materials (IUMRS-ICAM 2017), Kyoto, Japan.
- 2017 **Invited speaker**, Science Day, Delft University of Technology, Delft, The Netherlands.
- 2016 **Invited speaker**, Dutch Vacuum Society (NEVAC), The Netherlands.
- 2015 **Invited tutorial speaker**, MRS Spring Meeting, Tutorial S: "Structural and Functional Characterization of Nanowires", San Francisco, USA.

[Invited Seminars and Colloquia](#)

- 2026 **Invited seminar**, ARCNL – Advanced Research Center for Nanolithography, Amsterdam, The Netherlands. Host: Dr. Roland Bliem.
- 2026 **Invited colloquium**, Joan van der Waals Colloquium, Leiden University, Leiden, The Netherlands. Host: Dr. Wolfgang Löffler.
- 2025 **Invited seminar**, Department of Physics, University of Oxford, Oxford, United Kingdom. Host: Prof. Michael Johnston.
- 2024 **Invited seminar**, AMOLF, Amsterdam, The Netherlands. Host: Prof. Esther Alarcón.
- 2024 **Invited colloquium**, QMat Colloquium, University of Amsterdam, Amsterdam, The Netherlands. Host: Dr. Jorik van de Groep.
- 2024 **Invited colloquium**, Physics Colloquium, Zernike Institute, University of Groningen, Groningen, The Netherlands. Host: Dr. Marcos Guimarães.
- 2021 **Invited seminar**, NWO, Utrecht, The Netherlands, online. Host: NWO programme management.
- 2021 **Invited seminar**, ELECMI, Madrid, Spain, online.
- 2020 **Invited seminar**, Electron Microscopy for Materials Science Meeting, Utrecht University, Utrecht, The Netherlands. Host: Dr. Marijn van Huis.

- 2019 **Invited seminar**, Department of Chemistry, University of Barcelona, Barcelona, Spain. Host: Prof. Eliseo Ruiz.
- 2019 **Invited seminar**, Department of Physics, University of Oxford, Oxford, United Kingdom. Host: Prof. Michael Johnston.
- 2019 **Invited seminar**, Department of Materials Science and Engineering, Delft University of Technology, Delft, The Netherlands. Host: Prof. J. M. C. Mol.
- 2018 **Invited seminar**, NanoLund, Centre for Nanoscience, Lund University, Lund, Sweden.
- 2018 **Invited seminar**, Structure and Chemistry of Nanomaterials Group, University of Cádiz, Cádiz, Spain. Host: Prof. Ana Hungría Hernández.
- 2018 **Invited seminar**, Department of Physics, University of Basel, Basel, Switzerland. Host: Prof. Ilaria Zardo.
- 2017 **Invited seminar**, ONO group, Delft University of Technology, Delft, The Netherlands. Host: Dr. Anton Akmerov.
- 2017 **Invited seminar**, Imaging Physics Department, Delft University of Technology, Delft, The Netherlands. Host: Dr. Kees Hagen.
- 2016 **Invited seminar**, Center for Quantum Devices, University of Copenhagen, Copenhagen, Denmark. Host: Dr. Peter Krogstrup.
- 2016 **Invited seminar**, QuTech, Delft University of Technology, Delft, The Netherlands. Host: Dr. Giordano Scappucci.
- 2015 **Invited seminar**, Delft University of Technology, Delft, The Netherlands. Host: Prof. Erik Bakkers.

Complete list of publications

Summary. Publication record: 64 peer-reviewed journal publications, with 4,639 citations and h-index **to update** (Google Scholar, accessed July 2026). The publication record includes senior-authored work in *Advanced Functional Materials*, *Small Science*, *Nanoscale*, *Nano Letters*, *Ultramicroscopy*, *ACS Photonics*, and *npj Computational Materials*, spanning electron microscopy, van der Waals materials, nanophotonics, strain engineering, and machine-learning-assisted microscopy.

- [64] B. van der Wielen, J. J. M. Sangers, S. Mañas-Valero, J. Rojo, and **S. Conesa-Boj**, "Uncertainty-aware machine learning for core-loss background subtraction in EELS", *npj Comput. Mater.* (2026) 44.
- [63] A. Azimi, J. Barrier, A. Barreda, T. Bauer, F. Bouzari, A. Brokkelkamp, F. Buatier de Mongeot, T. Parsons, P. Christianen, **S. Conesa-Boj**, A. G. Curto, S. Das, B. Dias, I. Epstein, Z. Fedorova, F. J. García de Abajo, I. Goykhman, L. Greten, J. Grönqvist, L. Guarneri, Y. Guo, T. Hoekstra, X. Hu, B. Laudert, J. Lynch, S. Meyer, B. Munkhbat, D. Neshev, M. Ogienko, S. Papadopoulos, A. Parappurath, J. Sangers, P. Soubelet, C. Soukaras, G. Soavi, I. Staude, Z. Sun, K.-J. Tielrooij, M. D. G. Uddin, A. Ustinov, J. van de Groep, J. van Wezel, N. Vermeulen, H. Wang, Y. Wang, S. Xiao, B. You, and X. Zambrana-Puyalto, "Photonics in Flatland: Challenges and Opportunities for Nanophotonics with 2D Semiconductors", *npj Nanophotonics* (2025) 2, 44.
- [62] J. J. M. Sangers, A. Brokkelkamp, and **S. Conesa-Boj**, "Strain-Induced Moiré Polarization Vortices in Twisted-Multilayer WSe₂", *Small* (2025) 2503363.
- [61] A. Paul, K. Rishav, G. Klootwijk, M. Sarkar, O. Bisht, Z. Li, **S. Conesa-Boj**, G. Papadakis, and S. F. Pereira, "Characterization of the 3D-optical properties of van der Waals materials with deep learning based coherent Fourier scatterometry", *ACS Photonics* (2025).
- [60] A. Brokkelkamp, S. E. van Heijst, and **S. Conesa-Boj**, "Edge-Localized Plasmonic Resonances in WS₂ Nanostructures from Electron Energy-Loss Spectroscopy", *Small Sci.* (2025) 2400558.

- [59] M. Bolhuis, S. E. van Heijst, J. J. M. Sangers, and **S. Conesa-Boj**, “Nanoscale Strain Mapping in van der Waals Materials from 4D-STEM: Beyond the Planar Configuration”, *Small Sci.* (2024) 4, 2300249.
- [58] S. E. van Heijst, M. Bolhuis, A. Brokkelkamp, J. J. M. Sangers, and **S. Conesa-Boj**, “Heterostrain-Driven Bandgap Increase in Twisted WS₂: A Nanoscale Study”, *Adv. Funct. Mat.* (2024) 2307893.
- [57] S. van der Lippe, A. Brokkelkamp, J. Rojo, and **S. Conesa-Boj**, “Localized Exciton Anatomy and Bandgap Energy Modulation in One-Dimensional MoS₂ Nanostructures”, *Adv. Funct. Mat.* (2023) 33, 2307610.
- [56] H. La, A. Brokkelkamp, S. van der Lippe, J. ter Hoeve, J. Rojo, and **S. Conesa-Boj**, “Edge-Induced Excitations in Bi₂Te₃ from Spatially Resolved Electron Energy-Gain Spectroscopy”, *Ultramicroscopy* (2023) 254, 113841.
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