

EXECUTIVE SUMMARY

SCIENTIFIC PRODUCTION

1 book, 52 articles in international peer-reviewed journals (1 Nature, 1 Nature Physics, 1 Science, 6 Physical Review Letters, 2 Nature Communications, 1 Optica, 1 Optica Quantum, 3 Science Advances, 1 Light: Science & Applications), co-author of **195 contributions at international conferences** (83 among invited, post-deadline and plenary talks, of which 21 personally presented), **h-index: 30** (Google Scholar, >8900 citations).

ACADEMIC QUALIFICATIONS AND HONORS

i. “Emiliano Sali” award, Italian Physical Society (2012); **ii.** Insubria University Press award (2010); **iii.** “Galluzzi’s award for Physics 2006”, University of Rome “Roma Tre” (2006).

Habilitation to Professore Ordinario (Full Professor), disciplinary field 02/B1 - Experimental physics of matter (12/2023-12/2034).

FUNDING TRACK RECORD

>€4M as principal investigator since starting as an independent researcher in 2018, including an ERC Consolidator grant; >€250k in direct Knowledge Exchange grants with industries; >€250k in competitively awarded postdoctoral fellowships.

SCIENTIFIC LEADERSHIP AND COMMUNITY SERVICE

Program and General Chair for the Optica international conference Integrated Photonics Research (2019, 2020, 2021); Committee member for several international conferences (Optica CLEO US, FiO, NLO); External examiner for 9 PhD vivae; Reviewer for several international funding agencies; Member of Optica and the Italian Physical Society.

SUPERVISION ACTIVITIES

Current: co-supervision of 1 PDRA. Past: 4 PDRAs; 3 PhD as first supervisor; 4 PhDs as second supervisor; co-supervision of 3 PhD and 7 undergraduate students.

OUTREACH AND DISSEMINATION

Invited public lectures on advanced research topics for general audiences; outreach/orientation talks for secondary schools.

RESEARCH PROFILE

16 years post-PhD (~15 years effective, accounting for maternity leaves). Independent researcher since 2018. Research areas: quantum optics, integrated photonics, nonlinear optics – spanning both theoretical and experimental work.

ACADEMIC APPOINTMENTS

- 05/2024 – Associate Professor**
Università degli Studi dell'Insubria, Como, Italy. PI (with Prof. Matteo Clerici) of the research group 'Quantum and Ultrafast Photonics' (QuP).
- 05/2024 – Visiting Researcher**
Institute of Photonics, University of Strathclyde, Glasgow, UK.
- 12/2021 – 04/2024 Senior Lecturer (Associate Professor)**
Institute of Photonics, University of Strathclyde, Glasgow, UK. PI of the research group 'Quantum Photonics' – 4 people.
- 06/2018 – 11/2021 Chancellor's Fellow and Lecturer (Lecturer B, Assistant Professor)**
University of Strathclyde & Fraunhofer Centre for Applied Photonics, Glasgow, UK. PI of the research group 'Quantum Photonics'.
- 02/2017 – 05/2018 Fraunhofer Fellow in Quantum Technologies**
University of Strathclyde & Fraunhofer Centre for Applied Photonics, Glasgow, UK.
- 07/2014 – 01/2017 International Incoming Marie Curie Fellow**
Heriot-Watt University, Edinburgh, UK.
- 05/2011 – 05/2014 Postdoctoral Fellow, 2 externally funded postdoctoral fellowships**
INRS-EMT, Varennes, Canada.
- 01/2011 – 04/2011 Visiting Scientist**
INRS-EMT, Varennes, Canada.
- 10/2009 – 09/2010 Assegnista di ricerca (Equivalent to Postdoctoral research fellow)**
Università degli Studi dell'Insubria, Como, Italy.

EDUCATION

- 10/2006 – 03/2010 Research Doctorate in Physics (PhD)**
Spatiotemporal structure of entanglement in Parametric Down Conversion
March 18th, 2010 – Università degli studi dell'Insubria, Como, Italy.
Supervisor: Dr Alessandra Gatti.
PhD thesis selected for publication as a book by the Insubria University Press (IUP) among the PhD theses of the Faculty of Chemical, Physical and Mathematical Sciences of the Insubria University (2010).
- 10/2003 – 07/2006 Magistral Laurea degree in physics (MSc), 110/110 cum laude**
Imaging techniques by means of quantum-correlated optical beams
July 6th, 2006 – Università degli studi dell'Insubria, Como.
Supervisor: Prof. Luigi Lugiato.
Master thesis awarded with the "Galluzzi's prize for Physics 2006" by the University of Rome "Roma Tre".
- 10/2000 – 10/2003 Laurea degree in Physics (BSc), 110/110 cum laude**
Error correction techniques in quantum computing
October 23rd, 2003 – Università degli studi dell'Insubria, Como.
Supervisor: Dr Giuliano Benenti.
Awarded with 2 scholarships for the high average marks achieved.

GRANTS AND FELLOWSHIPS

- **05/2024 – 04/2029** ERC Consolidator Grant 2023, 5 years, "Quantum-enhanced nonlinear imaging (QuNIm)", GAP 101125923, €2M, **PI**.
- **2024** FIS (Fondo Italiano per la Scienza) Starting Grant selected for funding, 5 years,

- “Enhanced Multiphoton Fluorescence Microscopy by Quantum-correlated Beams”, €1M, **PI. Awarded, but declined.**
- **03/2024 – 02/2027** EPSRC Standard Grant, **co-I**, £1M, “Silicon Core Fibres: Extending the reach of nonlinear fibre systems”.
 - **10/2023 – 09/2027** Scottish Funding Council, Alliance for Research Challenge in Quantum Technologies, **co-I**, £600k.
 - **09/2023 – 08/2025** Innovate UK-Canada, **co-I**, £500k, “Generation of Entanglement for Quantum Secure Multiparty Computation”.
 - **10/2022 – 03/2026** Industrial PhD scholarship (AWE and QuantIC), **PI**, £185k, “Quantum entanglement-based tamper indication techniques”.
 - **11/2022 – 04/2025** Innovate UK ISCF Commercialising Quantum Technologies, Feasibility Study, **PI**, £460k, “A PACKAGE source of Multiplexed Entangled photons (PADME)”, PN 10031438. Lead industrial partner: Bay Photonics Ltd (UK).
 - **10/2022 – 01/2023** Consultancy Project, Office of the Chief Scientific Advisor, UK, **PI**, £20k.
 - **12/2021 – 05/2024** EPSRC New Investigator Award, **PI**, £366k, “Integrated Quantum Frequency Combs for Cluster States Generation”, EP/V062492.
 - **08/2021 – 06/2023** Innovate UK ISCF Commercialising Quantum Technologies, Feasibility Study, **co-I**, £500k, “High Quantum Efficiency Detectors”, PN 10001572. Industrial partners: Bay Photonics Ltd (lead), Redwave Labs Ltd, Centre for Process Innovation.
 - **03/2021 – 06/2023** Accelerated Development Fund, QuantIC, UK Quantum Technology Hub in Quantum Enhanced Imaging, **PI**, £187k, “Quantum-enhanced multiphoton fluorescence microscopy”, co-Is: Drs Clerici and Müllenbroich, Glasgow University.
 - **07/2020** Reached the reserve list (**first not funded project** in PE7, eventually unsuccessful) for the ERC Starting Grant 2020 with a project on quantum-enhanced multiphoton fluorescence microscopy.
 - **09/2020 – 12/2021** Knowledge Exchange project with AWE, **PI**, £22k, “Quantum Seals for tampering detection”, co-Is: Prof. Jeffers, Dr Pritchard, University of Strathclyde.
 - **03/2019 – 02/2020** Royal Society Research Grant, **PI**, £20k, “Heralded entangled photon pairs on chip”.
 - **07/2014 – 06/2016** International Incoming Marie Curie Fellowship, ~€230k.
 - **04/2012 – 05/2013** Postdoctoral fellowship (MELS-FQRNT V2 – Prov. Québec. Competitive, 1st rank, CAN\$ 35k).
 - **04/2011 – 05/2012** Postdoctoral fellowship (PDRF, Government of Canada, competitive, CAN\$ 35k).

ACADEMIC QUALIFICATIONS AND HONORS

- **2023 – 2034** Habilitation to “Professore Ordinario”, 02/B1 “Fisica sperimentale della materia”, Italy.
- **2018 – 2027** Habilitation to “Professore Associato”, 02/B1 “Fisica sperimentale della materia”, Italy.
- **2018 – 2027** Habilitation to “Professore Associato”, 02/B2 “Fisica teorica della materia”, Italy.
- **2013 – 2017** Habilitation to “Maître de conférences” (Lecturer Equivalent), France.
- **2012** “Emiliano Sali” award, Italian Physical Society: awarded to the best PhD laureate submitting a thesis in Atomic, Molecular or Optical Physics at an Italian University after January 2009.
- **2010** Insubria University Press award: PhD thesis selected for publication among the theses of the Faculty of Chemical, Physical and Mathematical Sciences of Insubria University.
- **2006** “Galluzzi’s award for Physics 2006”, University of Rome “Roma Tre”: best Master thesis in Physics submitted at an Italian University.

SCHOLARSHIPS

- **2007 – 2009** Outstanding student scholarship “Student Support and tutoring” (Insubria Univ.), yearly from 2007 to 2009.

- **2006 – 2009** PhD scholarship (Insubria Univ., competitive, 1st rank).
- **2006** Research fellowship, 3 months, (Insubria University).
- **2002 – 2003** Bachelor scholarship, reduced university fees (Insubria University).
- **2001 – 2002** Bachelor scholarship, reduced university fees (Insubria University).

TEACHING EXPERIENCE

- 2024 –** Lecturer for the “Quantum Physics II” class, 3rd year, BSc Physics, Università dell’Insubria, Italy.
- 2024 –** Lecturer for the “Physics II” class (BSc Chemistry and Mathematics degrees), 2nd year, Università dell’Insubria, Italy.
- 2024 –** Lecturer for part of the “Quantum and Semiclassical Optics” class, MSc Physics, Università dell’Insubria, Italy.
- 2020 – 2024** Lecturer for the PH260 “Physical Electronics” class, Level 2, 10 credits. Department of Physics class for Electronic & Electrical Engineering students.
- 2018 – 2024** Lecturer for the “Quantum Wells and Quantum Dots” module of the PH963 class “Advanced Photonics Devices”, Level 5, 20 credits, master program.
- 02/2012** Course on Fundamentals of Quantum Optics, undergraduate and graduate level, INRS-EMT, Varennes, 3 hours.
- 2007 – 2010** Teaching assistant for the course “Quantum Physics II”, undergraduate level, Università dell’Insubria, Italy.

TRAINING ACTIVITIES

- **PDRA:** Currently co-supervising 1 PDRA (T. Dickinson, 2025-2026, University of Insubria) on activities related to quantum-enhanced multiphoton processes. Supervised 4 PDRAs - S. Bommer (2023-2024, Univ. Strath.) and T. Dickinson (2024, Univ. Strath.), on activities related to integrated quantum photonics; Sai Kiran Rajendran (2022, Univ. Strath.) on activities related to quantum-enhanced multiphoton processes; Rachel Offer (2018-2019, Univ. Strath.) on activities related to quantum memories.
- **PhD students**
First supervisor:
 - T. Dickinson, *Quantum-Enhanced Two Photon Interactions*, University of Strathclyde, 2020-2023 (PhD viva April 2023);
 - A. Gorrie, *Quantum Entanglement-based Tamper-Indication Techniques*, University of Strathclyde, 2022-2024, viva expected in 2026;
 - C. Hamilton, *Quantum Entanglement-based Tamper-Indication Techniques*, University of Strathclyde, 2022-2024, viva expected in 2026;Other supervising activities: Second supervisor of 3 PhD students (R. Cassells, S. Bommer, and S. Anderson, Strathclyde, 2019-2023, viva pending); co-supervisor of 3 PhD students: C. Reimer, integrated quantum optics (INRS-EMT, Canada, 2012-2015), R. Kaipurath, enhanced nonlinearity in metamaterials and H. Dinparasti, photon pair generation in 2D materials (Heriot-Watt University, 2014-2017).
- **Undergraduates:** Past supervision of 6 undergraduate students: K. Tallett (2023-2024 & 2022-2023) and A. Dolan (2022-2023), A. Qazi (2021-2022 & 2020-2021), A. Cook (2021-2022), J. Harrison (2020-2021), B. Nikolov (2019-2020), on activities related to (integrated) quantum photonics, Strathclyde, 4th/5th year project. Co-supervisor of 3 undergraduate Physics students: S. Anderson on activities related to quantum applications of semiconductor disk lasers, (Strathclyde, 4th year project, 2017 and 5th year project, 2018); S. Jamieson on the topic of sonoluminescence (Heriot-Watt, 5th year project, 2015); co-supervisor of one MSc student, P. Tannouri, on activities related to integrated quantum and nonlinear optics (INRS-EMT, 2011-2012).
- Tutoring of 2 summer students at INRS-EMT (G. Bappi, 2012 and V. Singh, 2011).

RESEARCH ACTIVITIES

- **Quantum-enhanced multiphoton fluorescence microscopy.** Many pioneering advances in medicine and biology require observation of the microscopic world with high resolution and without damaging the specimen. One of the most successful and widespread techniques is multiphoton fluorescence microscopy, which allows full 3D imaging via optical sectioning, i.e., imaging of planes within the sample without physical slicing. However, multiphoton microscopy requires intense ultrashort pulsed lasers, and the depth of operation is limited to a few hundred microns by the low signal-to-noise ratio. In addition, there are still concerns over the possibility that the high laser powers required to excite the fluorescence could modify the sample under investigation.

I want to address these limitations by exploiting the unique properties of entanglement, a quantum mechanical superposition of two or more photons that behave like single particles. The proposed quantum-enhanced technique will maintain the strengths of standard multiphoton fluorescence microscopy (high 3D resolution and molecular specificity), yet with an increased signal-to-noise ratio. We expect this microscope to require illumination powers ~ 1000 times lower than the classical counterpart, enabling 3D imaging of even the most fragile and delicate specimens. On the other hand, the concept also applies to 3- and 4-photon absorption processes and the increased signal-to-noise ratio will allow an enhanced penetration depth. This could enable deeper imaging at low illumination levels, giving access to sub-cortical brain regions fundamental for studies into learning, memory, and degenerative neural conditions such as Alzheimer's disease.

- **Integrated Quantum Photonics.** Quantum computing is one of the most exciting contemporary challenges. The rapid progress of these past few years is reinforcing the vision of a quantum computer to become operative in the not-too-far future. However, no definite and favourite platform has emerged so far, and the community is still scouting all available options (superconducting circuits, trapped ions, neutral or cold atoms, etc.). In this framework, photons play a relevant role due to their high resilience to decoherence (loss of the quantum states information via interaction with the environment) and the direct link with quantum communication. In all these approaches, the challenge ahead is scalability: the current quantum machines can only process a limited number of quantum bits, limiting their application to the solution of proof-of-concept problems.

I am investigating a novel approach for generating highly complex quantum states, called cluster states, that underpin a scalable approach to photonic quantum computing. Such states, to be useful, must live on miniaturised components fabricated by a mature technology that supports scalability with increased complexity and commercial viability. Integrated photonics satisfies both these requirements. It can count on many tools and devices developed during the last forty years for telecommunications and data processing. I am developing a novel way to realise large-scale cluster states combining integrated photonics – a mature technology that has proven affordable and agile – and frequency combs. A suitable integration of frequency combs will allow entanglement to be shared among all the comb lines, effectively generating a large-scale integrated cluster state.

REVIEWING ACTIVITIES

- **Journals:** Nature, Science, Science Advances, Nature Photonics, npj Quantum Information, Communications Physics, Scientific Reports, ACS Photonics, Optics Express, Optics Letters, Applied Physics Letters, Journal of the Optical Society of America B, Progress in Quantum Electronics, Applied Physics Express, and Optics & Laser Technology.
- **Councils/Funding Agencies:** European Research Council; Carl Zeiss Stiftung, Germany; Carlsberg Foundation, Denmark; Israel Science Foundation; EPSRC, UK; MITACS (Elevate & Accelerate programs) and NSERC, Canada; PRIN, Italy; NCSTE, Kazakhstan; Czech Science Foundation.

OTHER SCIENTIFIC ACTIVITIES AND INSTITUTIONAL RESPONSIBILITIES

- Member of the University of Insubria Colleges Scientific Committee (from 2025)
- Member of the Scientific Council for the Insubria International Summer School (from 2025).
- Member of the PhD Academic Board in Physics and Astrophysics, University of Insubria, since May 2024.
- Member of the University of Strathclyde Senate from September 2022 to April 2024.

- Lecturer at the UK MetaMaterials Network Summer school (August 2022), University of St Andrews, UK.
- Editor for Scientific Reports (since March 2020).
- External Examiner for 11 PhD vivae (University of Pavia, Italy, January 2026; Aarhus University, Denmark, October 2025; University of Hannover, February 2025; Heriot-Watt University, August 2024; University of Exeter, October 2023; University of Pavia, Italy, June 2023; KTH, Sweden, June 2022; University of Rome La Sapienza, Italy, February 2022; University of Pavia, Italy, March 2021; Aarhus University, Denmark, October 2020; University of Sussex, September 2020)
- Lecturer at the “Quantum devices for non-classical light generation and manipulation” Summer School (10/2019), Erice, Italy.
- Lecturer at the 10th Optoelectronics and Photonics Winter school organised by the University of Trento, the Nanoscience Laboratory, and The University of Rome La Sapienza, Andalo, Italy, 20-26 January, 2019. Lecture topic: “Nonlinear optics for quantum science”.
- Member of the Institute of Photonics (Strath) management group (2018-2024).
- Organiser for the Institute of Photonics (Strath) seminars (2018-2023).

Conference Committees

- Committee member for the Optica Frontiers in Optics + Laser Science conference 2026, Topic: Quantum Electronics.
- Committee member for the Optica Nonlinear Optics Topical Meeting 2025, Topic: Nonlinear Quantum Optics.
- Track co-chair for Quantum Photonics at the IEEE International Conference on Quantum Computing and Engineering 2024.
- Committee member for the Optica CLEO US Conference, FS3: Quantum Photonics, 2024-2025-2026.
- Program chair for the OSA conference Integrated Photonics Research, Silicon, and Nano-Photonics, Montreal, Canada, July 26-29, 2021 (virtual).
- Committee member for the OSA Nonlinear Optics Topical Meeting 2021, Topic: Quantum Effects Enabled by Nonlinear Optics, August 9-13, 2021 (virtual).
- Topic co-chair for Quantum Communications, Institute of Physics conference Photon2020, Nottingham, UK, September 1-4, 2020 (virtual).
- General chair for the OSA conference Integrated Photonics Research, Silicon, and Nano-Photonics, Montreal, Canada, July 13-16, 2020 (virtual).
- Program chair for the OSA conference Integrated Photonics Research, Silicon, and Nano-Photonics, Burlingame, US, July 29-August 1, 2019.
- 2018 and 2020, committee member for the OSA Pacific Rim Conference on Lasers and Electro-Optics (CLEO Pacific Rim), C7. Quantum Optics, Atomic Physics and Quantum Information.
- Sub-committee chair for the OSA conference Integrated Photonics Research, Silicon, and Nano-Photonics, Zurich, Switzerland, July 2-5, 2018.
- Organizer of the special session “Towards integrated quantum photonics: materials, designs, technologies and applications” at the international conference META’17, the 8th International Conference on Metamaterials, Photonic Crystals and Plasmonics, Incheon - Seoul, South Korea, July 25-28, 2017.
- Committee member for the conference Photonics North 2014 (Optical Society of America), May 28-30, 2014, Montreal, Canada.
- Session chair at CLEO 2012 (Optical Society of America), May 6-11, 2012, San José, US.
- Program chair of the workshop “Novel Trends in Photonics 2012”, February 8, 2012, Varennes, Canada.
- Member of the organizing committee for the Kick-off meeting for the European FP7 Project “Hideas”, Varenna, Como, Italy, November 5-7, 2008.

OUTREACH AND DISSEMINATION

- Orientation lecture for secondary school students, “Lasers: Principles and Applications in Modern Technology”, delivered as part of the *Photonics Afternoon*, University of Insubria, 25th November 2025.
- Outreach lecture, “Light and Quantum Science in Future Technologies”, delivered as part of the

Evening Talks Series of the *Lake Como School of Advanced Studies*, Confindustria Como, 19th June 2025.

- Invited outreach lecture, “The Laser and Its Use in Modern Technologies”, *Università degli Adulti (University of the Third Age)*, Olgiate Comasco (Como), 7th March 2025.
- Orientation lecture and activity for secondary school students, “Professione Fisico”, Enrico Fermi Scientific Lyceum, Cantù (Como), 5th February 2025.
- Invited outreach lecture, “Light and Quantum Science in Future Technologies”, delivered as part of the *Evening Talks Series* of the *Lake Como School of Advanced Studies*, Confindustria Como, 19th June 2025.

CIRCUMSTANCES THAT DELAYED THE SCIENTIFIC CAREER

Maternity leaves from August 2012 to April 2013 and from May to December 2016.

DETAILED PUBLICATION LIST**1. Publications in peer-reviewed journals (* corresponding author)**

- [P52] S. Anderson, P. Hisao Moriya, L. Caspani, and J. Hastie, “Sub-kHz linewidth intracavity VECSEL-pumped OPO”, accepted for publication in *APL Photonics*, (2026).
- [P51] S. Stengel, J. I. Choi A. B. Solanki, H. Ather, P. G. Chen, B. M. Triplett, M. Ozlu, K. R. Choi, A. Senichev, W. Jaffray, A. S. Lagutchev, **L. Caspani**, M. Clerici, L. Razzari, R. Morandotti, M. Ferrera, A. Boltasseva, and V. M. Shalaev, “Quantum dot emission enhancement via coupling with an epsilon-near-zero sublayer”, *APL Quantum* **3**, 016106 (2026).
- [P50] T. Dickinson, I. Afxenti, G. Astrauskaite, L. Hirsch, S. Nerenberg, O. Jedrkiewicz, A. Gatti, D. Faccio, C. Müllenbroich, M. Clerici, and **L. Caspani**, “Quantum-enhanced second harmonic generation beyond the photon pairs regime”, *Science Advances* **11**, eadw4820 (2025).
- [P49] A. Gatti, M. Clerici, **L. Caspani**, “Enhancing upconversion with space–time entanglement: from twin photons to twin-beams”, *Optica Quantum* **3**, 269 (2025).
- [P48] D. Adamou, L. Hirsch, T. Shields, S. Yoon, A. C. Dada, J. M. R. Weaver, D. Faccio, M. Peccianti, **L. Caspani**, M. Clerici, “Quantum-enhanced time-domain spectroscopy”, *Science Advances* **11**, eadt2187 (2025).
- [P47] I. Afxenti, L. Yu, T. Shields, D. Faccio, T. Bradley, **L. Caspani**, M. Clerici, A. C. Dada, “Polarization purity and dispersion characteristics of nested antiresonant nodeless hollow-core optical fiber at near- and short-wave-IR wavelengths for quantum communications”, *Optics Express* **32**, 34471 (2024).
- [P46] S. Anderson, P. H. Moriya, **L. Caspani**, and J. E. Hastie, “Single-frequency optical parametric oscillator intracavity-pumped by a visible VECSEL for low-noise down-conversion to 1.55 μm ”, *Optics Express* **32**, 4254 (2024).
- [P45] A. Khodadad Kashi, **L. Caspani**, and M. Kues, “Spectral Hong-Ou-Mandel Effect between a Heralded Single-Photon State and a Thermal Field: Multiphoton Contamination and the Nonclassicality Threshold”, *Physical Review Letters* **131**, 233601 (2023).
- [P44] T. Shields, A. C. Dada, L. Hirsch, S. Yoon, J. M. R. Weaver, D. Faccio, **L. Caspani**, M. Peccianti, and M. Clerici, “Electro-Optical Sampling of Single-Cycle THz Fields with Single-Photon Detectors”, *Sensors* **22**, 9432 (2022).
- [P43] S. Sciara, P. Roztocky, B. Fischer, C. Reimer, L. Romero Cortés, W. J. Munro, D. J. Moss, A. C. Cino, **L. Caspani**, M. Kues, J. Azaña, R. Morandotti, “Scalable and effective multi-level entangled photon states: a promising tool to boost quantum technologies”, *Nanophotonics* **10**, 4447 (2021).
- [P42] E. G. Carnemolla, W. Jaffray, M. Clerici, **L. Caspani**, D. Faccio, F. Biancalana, C. DeVault, V. M. Shalaev, A. Boltasseva, and M. Ferrera, “Visible photon generation via four-wave mixing in near infrared near-zero-index thin films”, *Optics Letters* **46**, 5433 (2021).
- [P41] Y. Zhang, M. Kues, P. Roztocky, C. Reimer, B. Fischer, B. MacLellan, A. Bisianov, U. Peschel, B. E. Little, S. T. Chu, D. J. Moss, **L. Caspani**, and R. Morandotti, “Induced Photon Correlations Through the Overlap of Two Four-Wave Mixing Processes in Integrated Cavities”, *Laser & Photonics Review* **20**, 200128 (2020).
- [P40] J. B. Khurgin, M. Clerici, V. Bruno, **L. Caspani**, C. DeVault, J. Kim, A. Shaltout, A. Boltasseva, V. M. Shalaev, M. Ferrera, D. Faccio, N. Kinsey, “Adiabatic frequency shifting in epsilon near zero materials: the role of group velocity”, *Optica* **7**, 226 (2020).
- [P39] S. Prabhakar, T. Shields, A. Dada, M. Ebrahim, G. G. Taylor, D. Morozov, K. Erotokritou, S. Miki, M. Yabuno, H. Terai, C. Gawith, M. Kues, **L. Caspani**, R. H. Hadfield, and M. Clerici, “Two-photon Quantum Interference and Entanglement at 2.1 μm ”, *Science Advances* **6**, eaay5195 (2020).
- [P38] S. Sciara, C. Reimer, M. Kues, P. Roztocky, A. Cino, D. J. Moss, **L. Caspani**, W. J. Munro, and R. Morandotti, “Universal N-Partite d-Level Pure-State Entanglement Witness Based on Realistic Measurement Settings”, *Physical Review Letters* **122**, 120501 (2019).
- [P37] C. Reimer, S. Sciara, P. Roztocky, M. Islam, L. Romero Cortés, Y. Zhang, B. Fischer, S. Loranger, R. Kashyap, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, W. J. Munro, J. Azaña, M. Kues, and R. Morandotti, “High-dimensional one-way quantum processing implemented on d-level cluster states”, *Nature Physics* **15**, 148 (2019).
- [P36] S. Sciara, P. Roztocky, C. Rimoldi, M. Chemnitz, B. Fischer, L. Romero Cortés, W. J. Munro, D. J.

- Moss, **L. Caspani**, C. Reimer, J. Azaña, M. Kues, R. Morandotti, "Generation and Processing of Complex Photon States with Quantum Frequency Combs," *IEEE Photonics Technology Letters* **31**, 1862 (2019).
- [P35] P. Roztockı, S. Sciara, C. Reimer, L. Romero Cortés, Y. Zhang, B. Wetzel, M. Islam, B. Fischer, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, J. Azaña, M. Kues, R. Morandotti, "Complex quantum state generation and coherent control based on integrated frequency combs", *Journal of Lightwave Technology* **37**, 338 (2019).
- [P34] E. G. Carnemolla, **L. Caspani**, C. DeVault, M. Clerici, S. Vezzoli, V. Bruno, V. M. Shalaev, D. Faccio, A. Boltasseva, and M. Ferrera, "Degenerate optical nonlinear enhancement in epsilon-near-zero transparent conductive oxides", *Optical Materials Express* **8**, 3392 (2018).
- [P33] B. MacLellan, P. Roztockı, M. Kues, C. Reimer, L. Romero Cortés, Y. Zhang, S. Sciara, B. Wetzel, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, J. Azaña, R. Morandotti, "Generation and Coherent Control of Pulsed Quantum Frequency Combs", *Journal of Visualized Experiments* **11**, e57517 (2018).
- [P32] C. Reimer, Y. Zhang, P. Roztockı, S. Sciara, L. Romero Cortés, M. Islam, B. Fischer, B. Wetzel, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, J. Azaña, M. Kues, R. Morandotti, "On-chip frequency combs and telecommunications signal processing meet quantum optics", *Frontiers of Optoelectronics* **11**, 134 (2018).
- [P31] H. D. Saleh, S. Vezzoli, L. Caspani, A. Branny, S. Kumar, B. D. Gerardot, and D. Faccio, "Towards spontaneous parametric down conversion from monolayer MoS₂", *Scientific Reports* **8**, 3862 (2018).
- [P30] ***L. Caspani**, C. Xiong, B. J. Eggleton, D. Bajoni, M. Liscidini, M. Galli, R. Morandotti, and D. J. Moss, "Integrated sources of photon quantum states based on nonlinear optics", *Light: Science & Applications* **6**, e17100 (2017). **Invited review paper.**
- [P29] M. Kues, C. Reimer, P. Roztockı, L. Romero Cortés, S. Sciara, B. Wetzel, Y. Zhang, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, J. Azaña, and R. Morandotti "On-chip generation of high-dimensional entangled quantum states and their coherent control", *Nature* **546**, 7660 (2017).
- [P28] M. Clerici, N. Kinsey, C. DeVault, J. Kim, E. Carnemolla, **L. Caspani**, A. Shaltout, D. Faccio, V. Shalaev, A. Boltasseva, and M. Ferrera, "Controlling hybrid nonlinearities in transparent conducting oxides via two-colour excitation", *Nature Communications* **8**, 15829 (2017).
- [P27] M. Kues, C. Reimer, P. Roztockı, L. Romero Cortés, S. Sciara, J. Azaña, Y. Zhang, R. Morandotti, B. Wetzel, A. Cino, S.T. Chu, B. Little, D. Moss, **L. Caspani**, "Scaling On-Chip Entangled Photon States to Higher Dimensions", *Optics and Photonics News* **28**, 37 (2017). Special issue "Optics in 2017".
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- [P25] **L. Caspani**, R. P. M. Kaipurath, M. Clerici, M. Ferrera, T. Roger, J. Kim, N. Kinsey, M. Pietrzyk, A. Di Falco, V. M. Shalaev, A. Boltasseva, and D. Faccio, "Enhanced nonlinear refractive index in ϵ -near-zero materials", *Physical Review Letters* **116**, 233901 (2016).
- [P24] R. M. Kaipurath, M. Pietrzyk, **L. Caspani**, T. Roger, M. Clerici, C. Rizza, A. Ciattoni, A. Di Falco, and D. Faccio, "Optically induced metal-to-dielectric transition in Epsilon-Near-Zero metamaterials", *Scientific Reports* **6**, 27700 (2016).
- [P23] ***L. Caspani**, C. Reimer, M. Kues, P. Roztockı, M. Clerici, B. Wetzel, Y. Jestin, M. Ferrera, M. Peccianti, A. Pasquazi, L. Razzari, B. E. Little, S. T. Chu, D. J. Moss, and R. Morandotti, "Multifrequency sources of quantum correlated photon pairs on-chip: a path toward integrated Quantum Frequency Combs", *Nanophotonics* **5**, 351 (2016). **Invited paper.**
- [P22] C. Reimer, M. Kues, P. Roztockı, B. Wetzel, F. Grazioso, B. E. Little, S. T. Chu, T. Johnston, Y. Bromberg, **L. Caspani**, D. J. Moss, and R. Morandotti, "Generation of multiphoton entangled quantum states by means of integrated frequency combs", *Science* **351**, 1176 (2016).
- [P21] C. Reimer, M. Kues, ***L. Caspani**, B. Wetzel, P. Roztockı, M. Clerici, Y. Jestin, M. Ferrera, M. Peccianti, A. Pasquazi, B. E. Little, S. T. Chu, D. J. Moss, and R. Morandotti, "Cross-polarized photon-pair generation and bi-chromatically pumped optical parametric oscillation on a chip", *Nature Communications* **6**, 8236 (2015).
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- analyzer”, *Optics Express* **22**, 21488 (2014).
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- [P18] C. Reimer, **L. Caspani**, M. Clerici, M. Ferrera, M. Kues, M. Peccianti, A. Pasquazi, L. Razzari, B. E. Little, S. T. Chu, D. J. Moss, and R. Morandotti, “Integrated frequency comb source of heralded single photons”, *Optics Express* **22**, 6535 (2014).
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- [P16] M. Clerici, M. Peccianti, B. E. Schmidt, **L. Caspani**, M. Shalaby, M. Giguère, A. Lotti, A. Couairon, F. Légaré, T. Ozaki, D. Faccio, and R. Morandotti, “Wavelength Scaling of Terahertz Generation by Gas-lonization”, *Physical Review Letters* **110**, 253901 (2013).
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- [P14] M. Clerici, D. Faccio, **L. Caspani**, M. Peccianti, E. Rubino, L. Razzari, F. Légaré, T. Ozaki, and R. Morandotti, “CCD-based imaging and 3D space–time mapping of terahertz fields via Kerr frequency conversion”, *Optics Letters* **38**, 1899 (2013).
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- [P12] M. Clerici, **L. Caspani**, E. Rubino, M. Peccianti, M. Cassataro, A. Busacca, T. Ozaki, D. Faccio, and R. Morandotti, “Counterpropagating frequency mixing with terahertz waves in diamond,” *Optics Letters* **38**, 178 (2013).
- [P11] O. Yaakobi, **L. Caspani**, M. Clerici, F. Vidal, and R. Morandotti, “Complete energy conversion by autoresonant three-wave mixing in nonuniform media,” *Optics Express* **21**, 1623 (2013).
- [P10] M. Peccianti, M. Clerici, A. Pasquazi, **L. Caspani**, S. P. Ho, F. Buccheri, J. Ali, A. Busacca, T. Ozaki and R. Morandotti, “Exact reconstruction of THz sub-lambda source features in knife-edge measurements”, *IEEE Journal of Selected Topics in Quantum Electronics* **19**, 8401211 (2013). **Invited paper.**
- [P9] **L. Caspani**, D. Duchesne, K. Dolgaleva, S. Wagner, M. Ferrera, L. Razzari, A. Pasquazi, M. Peccianti, D.J. Moss, J. S. Aitchison, and R. Morandotti, “Optical frequency conversion in integrated devices”, *Journal of the Optical Society of America B* **28**, A66 (2011). **Special issue for the 50th Anniversary of Nonlinear Optics (Invitation Only).**
- [P8] A. Gatti, E. Brambilla, **L. Caspani**, O. Jedrkiewicz and L. A. Lugiato, “Quantum imaging and spatio-temporal correlations”, *Optics and spectroscopy* **111**, 540 (2011).
- [P7] E. Brambilla, **L. Caspani**, L. A. Lugiato, A. Gatti, “Spatiotemporal structure of biphoton entanglement in type-II parametric down-conversion”, *Physical Review A* **82**, 013835 (2010). **Selected for publication in the Virtual Journal of Quantum Information, vol. 10, issue 8.**
- [P6] **L. Caspani**, E. Brambilla, A. Gatti, “Tailoring the spatiotemporal structure of biphoton entanglement in type-I parametric down-conversion”, *Physical Review A* **81**, 033808 (2010). **Selected for publication in the Virtual Journal of Quantum Information, vol. 10, issue 3.**
- [P5] L. A. Lugiato, A. Gatti, E. Brambilla, **L. Caspani**, “Quantum signatures in the interference of macroscopic signal-idler beams”, *Journal of Modern Optics* **57**, 1273 (2010).
- [P4] A. Gatti, E. Brambilla, **L. Caspani**, O. Jedrkiewicz and L. A. Lugiato, “X entanglement: The nonfactorable spatiotemporal structure of biphoton correlation”, *Physical Review Letters* **102**, 223601 (2009). **Selected for publication in the Virtual Journal of Quantum Information, vol. 9, issue 6.**
- [P3] G. Brida, **L. Caspani**, A. Gatti, M. Genovese, A. Meda and I. Ruo Berchera, “Measurement of sub-shot-noise spatial correlations without background subtraction”, *Physical Review Letters* **102**, 213602 (2009).
- [P2] **L. Caspani**, O. Jedrkiewicz, E. Brambilla and A. Gatti, “Improving the spatial quantum correlation of twin beams by means of a sub-pixel symmetry centre retrieval algorithm”, *Journal of Modern Optics*

55, 2025 (2008).

- [P1] E. Brambilla, **L. Caspani**, O. Jedrkiewicz, L. A. Lugiato and A. Gatti, “High-sensitivity imaging with multi-mode twin beams”, *Physical Review A* **77**, 053807 (2008). **Selected for publication in the Virtual Journal of Quantum Information, vol. 8, issue 5.**

2. Books

- [B1] **L. Caspani**, “Spatiotemporal structure of entanglement in Parametric Down Conversion”, *Quaderni* **51**, Insubria University Press, Varese, ISBN 978-88-95362-50-2, 2013.

3. Contributions to symposia (in bold talks presented personally)

Post-deadline contributions

- [D1] M. Kues, C. Reimer, P. Roztocky, B. Wetzal, F. Grazioso, B.E. Little, S.T. Chu, D.J. Moss, **L. Caspani**, and R. Morandotti, “Frequency Comb of Time-Bin Entangled Photon Pairs on a Chip”, CLEO/Europe-EQEC, Munich, Germany, June 21-25, 2015, **post-deadline talk.**

Invited contributions

- [I83] T. Dickinson, I. Afxenti, G. Astrauskaite, L. Hirsch, S. Nerenberg, O. Jedrkiewicz, A. Gatti, D. Faccio, C. Müllenbroich, M. Clerici, and **L. Caspani**, “Quantum-enhanced Second Harmonic Generation Beyond the Spontaneous Parametric Down-conversion Regime”, *Frontiers in Optics + Laser Science FiO LS*, Denver, USA, October 26-30, 2025, **invited talk.**
- [I82] T. Dickinson, I. Afxenti, G. Astrauskaite, L. Hirsch, S. Nerenberg, O. Jedrkiewicz, A. Gatti, D. Faccio, C. Müllenbroich, M. Clerici, and **L. Caspani**, “Enhanced Entangled Second Harmonic Generation Beyond the Photon Pairs Regime”, *Ultrafast Optics UFO XIV*, Azores, Portugal, October 5-10, 2025, **invited talk.**
- [I81] T. Dickinson, I. Afxenti, G. Astrauskaite, L. Hirsch, S. Nerenberg, O. Jedrkiewicz, A. Gatti, D. Faccio, C. Müllenbroich, M. Clerici, and **L. Caspani**, “Enhancing Second Harmonic Generation with quantum light from Parametric Down Conversion beyond the photon pairs regime”, 111^o Congresso Nazionale SIF (Italian Physical Society), Palermo, Italy, September 22-26, 2025, **invited talk.**
- [I80] D. Adamou, L. Hirsch, T. Shields, S. Yoon, A. C. Dada, J. M R. Weaver, D. Faccio, **L. Caspani**, M. Peccianti, and M. Clerici, “Quantum Enhanced Time-Domain Spectroscopy”, *Optica Nonlinear Optics Topical Meeting*, Honolulu, Hawaii, USA, August 04-07, 2025, **invited talk.**
- [I79] T. Dickinson, I. Afxenti, G. Astrauskaite, L. Hirsch, S. Nerenberg, O. Jedrkiewicz, A. Gatti, D. Faccio, C. Müllenbroich, M. Clerici, and **L. Caspani**, “Towards quantum-enhanced nonlinear imaging”, *Meta 2024, 14th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Toyama, Japan, 16-19 July, 2024, **invited talk.**
- [I78] D. Adamou, L. Hirsh, T. Shields, S. Yoon, A.C. Dada, J.M.R. Weaver, D. Faccio, **L. Caspani**, M. Peccianti, and M. Clerici, “Development of Nonclassical Light Sources for Time-Resolved THz detection”, *Meta 2024, 14th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Toyama, Japan, 16-19 July, 2024, **invited talk.**
- [I77] D. Adamou, L. Hirsch, T. Shields, S. Yoon, A. C. Dada, J. M R. Weaver, D. Faccio, L. Caspani, M. Peccianti, and M. Clerici, “Probing Terahertz pulses with nonclassical radiation”, *10th International Conference on Antennas and Electromagnetic Systems – AES2024*, Rome, Italy, June 25-28, 2024.
- [I76] T. Dickinson, I. Afxenti, G. Astrauskaite, L. Hirsch, S. Nerenberg, O. Jedrkiewicz, A. Gatti, D. Faccio, C. Müllenbroich, M. Clerici, and **L. Caspani**, “Towards quantum-enhanced nonlinear imaging”, 13th Advanced Lasers and Photon Sources, Yokohama, Japan, 22-26 April, 2024, **invited talk.**
- [I75] D. Adamou, L. Hirsh, T. Shields, S. Yoon, A.C. Dada, J.M.R. Weaver, D. Faccio, **L. Caspani**, M. Peccianti, and M. Clerici, “Towards quantum-enhanced THz sensing”, 13th Advanced Lasers and Photon Sources, Yokohama, Japan, 22-26 April, 2024, **invited talk.**
- [I74] **L. Caspani**, S. Sciara, M. Kues, C. Reimer, P. Roztocky, L. Romero Cortés, B. Wetzal, Y. Zhang, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, W. J. Munro, J. Azaña, and R. Morandotti, “Generation and characterisation of cluster states on chip”, SPIE Photonex, Glasgow, UK, 24-26 October, 2023, **invited talk.**
- [I72] N. Montaut, P. Roztocky, Hao Yu, S. Sciara, M. Chemnitz, Y. Jestin, B. MacLellan, B. Fischer, M. Kues, C. Reimer, L. Romero Cortes, B. Wetzal, Yanbing Zhang, S. Loranger, R. Kashyap, A. Cino, S. T. Chu,

- B. E. Little, D. J. Moss, L. Caspani, W. J. Munro, J. Azaña, R. Morandotti, “Scalable quantum signal processing with integrated photonics and fiber-based modules” ICTON 2023, Bucharest, Romania, 2-6 July, 2023, **invited talk**.
- [I71] I. Afxenti, T. Dickinson, G. Astrauskaite, S. K. Rajendran, L. Hirsch, S. Nerenberg, C. Müllenbroich, A. Gatti, D. Faccio, M. Clerici, **L. Caspani**, “Multimode, High-photon number, Quantum enhanced sum frequency generation”, ICTON 2023, Bucharest, Romania, 2-6 July, 2023, **invited talk**.
- [I70] S. Sciara, C. Reimer, P. Roztockı, B. Fischer, L. Romero Cortés, D. J. Moss, **L. Caspani**, W. J. Munro, J. Azaña, M. Kues, and R. Morandotti, “On-Chip Generation and Telecom-Compatible Processing of Complex Photonic Systems in Time and Frequency”, *Frontiers in Optics + Laser Science*, Rochester, NY, USA, October 17-20, 2022, **invited talk**.
- [I69] **L. Caspani**, S. Sciara, M. Kues, C. Reimer, P. Roztockı, L. Romero Cortés, B. Wetzel, Y. Zhang, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, W. J. Munro, J. Azaña, and R. Morandotti, “Quantum applications of micro frequency combs”, *Global Summit and Expo on Lasers, Optics and Photonics (GSELOP2022)*, Edinburgh, UK, August 22-24, 2022, **invited talk**.
- [I68] T. Shields, L. Hirsch, A. C. Dada, S. Yoon, J. M. Weaver, D. Faccio, **L. Caspani**, M. Peccianti, M. Clerici, “THz sensing with single-photon detectors”, *IEEE 9th International Conference on Photonics 2022*, Online, August 8-9, 2022, **invited talk**.
- [I67] L. Caspani, S. Sciara, C. Reimer, P. Roztockı, L. Romero Cortés, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, W. J. Munro, J. Azaña, M. Kues, and R. Morandotti, “Integrated Microring Resonators for the Generation of Photonic Cluster States on-Chip”, OSA Advanced Photonics Congress, Nonlinear Photonics, Maastricht, Netherlands, July 24-28, 2022, **invited talk**.
- [I66] T. Shields, L. Hirsch, A. C. Dada, S. Yoon, J. M. Weaver, D. Faccio, **L. Caspani**, M. Peccianti, M. Clerici, “Single-cycle THz fields electro-optical sampling with single-photon detectors”, *2022 IEEE Summer Topicals Meeting*, MF2.3, Cabo San Lucas, Mexico, July 11-13, 2022, **invited talk**.
- [I65] M. H. Ebrahim, A. Marini, N. Kinsey, J. B. Khurgin, **L. Caspani**, M. Ferrera, V. M. Shalaev, A. Boltasseva, D. Faccio, M. Clerici, “Temporal dynamic of strongly coupled epsilon-near-zero media”, *AES 2022*, Marrakesh, Morocco, May 24-27, 2022, **invited talk**.
- [I64] **L. Caspani**, T. Dickinson, I. Afxenti, G. Astrauskaite, S. K. Rajendran, D. Faccio, C. Müllenbroich, M. Clerici, “Quantum-enhanced multiphoton fluorescence microscopy”, *BQIT:22, Ninth Annual Bristol Quantum Information Technologies Workshop*, April 25-28, 2022, **invited talk**.
- [I63] L. Caspani, S. Sciara, C. Reimer, P. Roztockı, L. Romero Cortés, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, W. J. Munro, J. Azaña, M. Kues, and R. Morandotti, “Generation and Characterization of Photonic Cluster States on-Chip”, CLEO US, San Josè, US, April 15-20, 2022, **invited talk**.
- [I62] **L. Caspani**, S. Sciara, C. Reimer, P. Roztockı, M. Islam, L. Romero Cortés, Y. Zhang, B. Fischer, S. Loranger, R. Kashyap, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, W. J. Munro, J. Azaña, M. Kues, and R. Morandotti, “Generation and characterisation of discrete photonics cluster states on-chip”, *Photonics Ireland 2021*, online conference, June 14-16, 2021, **invited talk**.
- [I61] T. Shields, A. Dada, S. Prabhakar, M. Ebrahim, G. Taylor, D. Morozov, K. Erotokritou, S. Miki, M. Yabuno, H. Terai, C. Gawith, M. Kues, L. Caspani, R. H. Hadfield, M. Clerici, “Mid-infrared two-photon interference and polarization entanglement”, SPIE Defense + Commercial Sensing, April 12-17, 2021, **invited talk**.
- [I60] **L. Caspani**, S. Sciara, C. Reimer, P. Roztockı, M. Islam, L. Romero Cortés, Y. Zhang, B. Fischer, S. Loranger, R. Kashyap, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, W. J. Munro, J. Azaña, M. Kues, and R. Morandotti, “Generation and characterisation of photonic cluster states on chip using frequency- and time-bin entanglement”, *22nd International Conference on Transparent Optical Networks*, Bari, Italy, July 19-23, 2020, **invited talk**. Conference moved to an online format.
- [I61] S. Sciara, C. Reimer, P. Roztockı, B. Fischer, L. Romero Cortés, D. J. Moss, **L. Caspani**, W. J. Munro, J. Azaña, M. Kues, and R. Morandotti, “Generation and Coherent Manipulation of Complex Entangled Photon States based on Integrated Quantum Frequency Combs”, *Integrated Photonics Research, Silicon, and Nano-Photonics*, Montreal, Canada, July 13-16, 2020, **invited talk**. Conference moved to an online format.
- [I60] M. Kues, P. Roztockı, Y. Zhang, C. Reimer, B. Fischer, B. MacLellan, B. E. Little, S. T. Chu, D. J. Moss, **L. Caspani**, and R. Morandotti “Photon correlation control in integrated quantum frequency combs”, *Integrated Photonics Research, Silicon, and Nano-Photonics*, Montreal, Canada, July 13-16, 2020,

- invited talk.** Conference moved to an online format.
- [I59] **L. Caspani**, S. Sciara, C. Reimer, P. Roztockı, M. Islam, L. Romero Cortés, Y. Zhang, B. Fischer, S. Loranger, R. Kashyap, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, W. J. Munro, J. Azaña, M. Kues, and R. Morandotti, “Quantum states of light for quantum metrology, computing and communication: High-dimensional discrete cluster states on chip”, *SPIE Photonics Europe*, Strasbourg, France, 29 March 29 – April 2, 2020, **invited talk.** Conference moved to an online format.
- [I58] B. Fischer, C. Reimer, S. Sciara, P. Roztockı, M. Islam, L. Romero Cortés, Y. Zhang, S. Loranger, R. Kashyap, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, W. J. Munro, J. Azaña, M. Kues, R. Morandotti, “High-dimensional d-level cluster states with on-chip quantum frequency combs”, *Photonics West 2020*, San Francisco, US, January 26-28, 2020, **invited talk.**
- [I57] M. Kues, S. Sciara, P. Roztockı, B. Fischer, C. Reimer, M. Islam, Y. Zhang, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, W. J. Munro, J. Azaña, and R. Morandotti, “On-chip quantum frequency combs for complex photon state generation”, *Photonics West 2020*, San Francisco, US, January 26-28, 2020, **invited talk.**
- [I56] S. Prabhakar, T. Shields, G. G. Taylor, D. Morozov, M. Kues, C. Gawith, L. Caspani, R. H. Hadfield and M. Clerici, “Correlated Photon pairs at 2 microns: Generation, Characterisation, and Detection”, *META’19, the 10th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Lisbon, Portugal, July 23-26, 2019, **invited talk.**
- [I55] **L. Caspani**, S. Sciara, C. Reimer, P. Roztockı, M. Islam, L. R. Cortés, Y. Zhang, B. Fischer, S. Loranger, R. Kashyap, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, W. J. Munro, J. Azaña, M. Kues, and R. Morandotti, “Generation of on-chip D-dimensional entangled cluster states and their characterization via optimal entanglement witnesses”, *META’19, the 10th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Lisbon, Portugal, July 23-26, 2019, **invited talk.**
- [I54] S. Sciara, M. Kues, C. Reimer, P. Roztockı, B. Wetzal, Y. Bromberg, B. E. Little, S. T. Chu, D. J. Moss, L. Caspani, and R. Morandotti, “Integrated Frequency Combs for the on-chip generation of optical quantum states”, *META’19, the 10th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Lisbon, Portugal, July 23-26, 2019, **invited talk.**
- [I53] S. Sciara, C. Reimer, M. Kues, P. Roztockı, M. Islam, L. R. Cortés, Y. Zhang, B. Fischer, S. Loranger, R. Kashyap, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, W. J. Munro, J. Azaña, and R. Morandotti, “On-chip Generation, Coherent Control and Processing of Complex Entangled Photon States”, *IEEE Photonics Society Summer Topical Meeting Series*, Ft. Lauderdale, US, July 8-10, 2019, **invited talk.**
- [I52] S. Sciara, C. Reimer, M. Kues, P. Roztockı, M. Islam, L. R. Cortés, Y. Zhang, B. Fischer, S. Loranger, R. Kashyap, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, W. J. Munro, J. Azaña, and R. Morandotti, “Integrated Quantum Frequency Combs for the On-Chip Realization and Processing of Complex Entangled Photon States”, *ICMAT 2019 – 10th International Conference on Materials for Advanced Technologies*, Marina Bay Sands, Singapore, June 23-28, 2019, **invited talk.**
- [I51] **L. Caspani**, S. Sciara, C. Reimer, P. Roztockı, M. Islam, L. R. Cortés, Y. Zhang, B. Fischer, S. Loranger, R. Kashyap, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, W. J. Munro, J. Azaña, M. Kues, and R. Morandotti, “High-Dimensional Cluster State on Chip and Optimal Entanglement Witnesses for One-Way Quantum Computing”, *ICQOQI’2019 - XI International Conference on Quantum Optics*, Minsk, Belarus, May 13-17, 2019, **invited talk.**
- [I50] P. Roztockı, C. Reimer, S. Sciara, L. Romero Cortés, Y. Zhang, B. Wetzal, M. Islam, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, J. Azaña, M. Kues, R. Morandotti, “Complex entangled photon states based on a microfrequency comb”, *ICQOQI’2019 - XI International Conference on Quantum Optics*, Minsk, Belarus, May 13-17, 2019, **invited talk.**
- [I49] P. Roztockı, C. Reimer, S. Sciara, L. Romero Cortés, Y. Zhang, B. Wetzal, M. Islam, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, J. Azaña, M. Kues, R. Morandotti, “Microcavity-based frequency combs for quantum state generation and coherent control”, *SPIE Photonics West*, San Francisco, US, February 2-7, 2019, **invited talk.**
- [I48] P. Roztockı, C. Reimer, L. Romero Cortés, S. Sciara, Y. Zhang, B. Wetzal, M. Islam, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, J. Azaña, M. Kues, R. Morandotti, “Framework for Complex Quantum State Generation and Coherent Control Based on On-Chip Frequency Combs”, *Frontiers*

- in Optics*, Washington, US, September 16-20, 2018, **invited talk**.
- [I47] E. Carnemolla, V. Bruno, M. Clerici, S. Vezzoli, C. DeVault, **L. Caspani**, A. Boltasseva, V. M. Shalaev, D. Faccio, and M. Ferrera, “Four-wave mixing in Epsilon-Near-Zero Aluminum Zinc Oxide”, *META’18, the 9th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Marseille, France, June 24 – July 1, 2018, **invited talk**.
- [I46] **L. Caspani**, “High-dimensional entanglement: a personal journey”, *SUPA Annual Gathering 2018*, RBS Conference Centre, Gogarburn, Edinburgh, UK, June 6, 2018, **invited talk**.
- [I45] **L. Caspani**, “High-dimensional entanglement on chip”, *9th Annual SU2P Symposium*, Technology and Innovation Centre, University of Strathclyde, Glasgow, UK, May 21-22, 2018, **invited talk**.
- [I44] P. Roztocky, M. Kues, C. Reimer, L. Romero Cortés, S. Sciara, B. Wetzal, Y. Zhang, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, J. Azaña, R. Morandotti, “Scalable On-chip Generation and Coherent Control of Complex Optical Quantum States”, *CLEO US*, San Jose, US, May 13-18, 2018, **invited talk**.
- [I43] C. Reimer, M. Kues, P. Roztocky, S. Sciara, L. Romero Cortés, B. Wetzal, Y. Zhang, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, J. Azaña, R. Morandotti, “On-chip Quantum Optical Frequency Comb Sources”, *Optical Fiber Communications Conference (OFC) 2018*, San Diego, US, March 11-15, 2018, **invited talk**.
- [I42] P. Roztocky, M. Kues, C. Reimer, L. Romero Cortés, S. Sciara, B. Wetzal, Y. Zhang, A. Cino, S. T. Chu, B. E. Little, D. J. Moss, **L. Caspani**, J. Azaña, R. Morandotti, “Integrated generation of complex optical quantum states and their coherent control”, *SPIE NanoPhotonics Australasia*, Melbourne, Australia, December 10-13, 2017, **invited talk**.
- [I41] **L. Caspani**, “Multiphoton and high-dimensional quantum states on chip”, *Rank Funds Symposium on Solid State Nano-Photonics for Quantum Science and Technology*, Grasmere, UK, 25-28 September, 2017, **invited talk**.
- [I40] C. DeVault, N. Kinsey, **L. Caspani**, M. Clerici, R. Kaipurath, T. Roger, E. Carnemolla, J. Kim, A. Shaltout, M. Pietrzyk, A. Di Falco, D. Faccio, A. Boltasseva, M. Ferrera, V. Shalaev, “Enhanced nonlinearities in transparent conducting oxides for ultrafast photonics”, *SPIE Nanoscience+Engineering, Active Photonic Platforms IX*, San Diego, US, August 6-10, 2017, **keynote**.
- [I39] M. Clerici, N. Kinsey, C. DeVault, J. Kim, E. Carnemolla, **L. Caspani**, A. Shaltout, R. Kaipurath, D. Faccio, V. Shalaev, A. Boltasseva, and M. Ferrera, “Harnessing interband and intraband nonlinearities in transparent conducting oxides via two-colour excitation”, *META’17, the 8th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Incheon-Seoul, South Korea, July 25-28, 2017, **invited talk**.
- [I38] M. Kues, C. Reimer, P. Roztocky, B. Wetzal, F. Grazioso, Y. Bromberg, B. E. Little, S. T. Chu, D. J. Moss, **L. Caspani**, R. Morandotti, “On-chip frequency combs for scalable quantum state generation”, *META’17, the 8th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Incheon-Seoul, South Korea, July 25-28, 2017, **invited talk**.
- [I38] S. Sciara, M. Kues, C. Reimer, P. Roztocky, B. Wetzal, Y. Bromberg, B. E. Little, S. T. Chu, D. J. Moss, **L. Caspani**, R. Morandotti, “On-Chip Quantum State Generation by Means of Integrated Frequency Combs”, *IEEE Photonics Society Summer Topicals Meetings Series*, San Juan, Puerto Rico, July 10-12, 2017, **invited talk**.
- [I37] M. Ferrera, M. Clerici, D. Faccio, E. Carnemolla, **L. Caspani**, N. Kinsey, C. DeVault, J. Kim, A. Shaltout, V. Shalaev, and A. Boltasseva, “Dynamic plasmonics with transparent conducting oxides”, *Photonics North*, Ottawa, Canada, June 6-8, 2017, **invited talk**.
- [I36] M. Kues, C. Reimer, P. Roztocky, B. Wetzal, F. Grazioso, Y. Bromberg, B. E. Little, S. T. Chu, D. J. Moss, **L. Caspani**, R. Morandotti, “On-chip frequency combs for scalable quantum state generation”, *Photonics North*, Ottawa, Canada, June 6-8, 2017, **invited talk**.
- [I35] M. Ferrera, M. Clerici, N. Kinsey, C. DeVault, J. Kim, E. Carnemolla, **L. Caspani**, A. Shaltout, D. Faccio, V. Shalaev, and A. Boltasseva, “Engineered Nonlinearities in Transparent Conducting Oxides”, *CLEO US*, San José, US, May 14-19, 2017, **invited talk**.
- [I35] C. Reimer, M. Kues, P. Roztocky, B. Wetzal, B. E. Little, S. T. Chu, D. J. Moss, **L. Caspani**, R. Morandotti, “Generation of Complex Quantum States via Integrated Frequency Combs”, *Design, Automation & Test in Europe Conference (DATE)*, Lausanne, Switzerland, March 27-31, 2017, **invited**

talk.

- [I34] M. Kues, C. Reimer, P. Roztocki, B. Wetzl, F. Grazioso, B. E. Little, S. T. Chu, T. Johnston, Y. Bromberg, **L. Caspani**, D. J. Moss, R. Morandotti, “On-chip Kerr frequency combs for scalable quantum state generation”, *20th Slovak - Czech - Polish Optical Conference On Wave and Quantum Aspects of Contemporary Optics*, Jasná, Slovakia, September 5-9, 2016, **invited talk**.
- [I33] D. Faccio, T. Roger, A. Lyons, M. Clerici, **L. Caspani**, R. Kaipurath, J. Kim, N. Kinsey, A. Boltasseva, V.M. Shalaev, M. Ferrera, S. Restuccia, J. Romero, D. Giovannini, J. Jeffers, M. Padgett, “Enhanced light-matter interaction in thin films”, *Photon16*, University of Leeds, Leeds, UK, September 5-8, 2016, **invited talk**.
- [I32] R. Morandotti, **L. Caspani**, C. Reimer, M. Kues, P. Roztocki, M. Clerici, B. Wetzl, Y. Jestin, M. Ferrera, M. Peccianti, A. Pasquazi, L. Razzari, B. E. Little, S. T. Chu, D. J. Moss, “Quantum applications of integrated frequency combs”, *Latin America Optics & Photonics Conference 2016*, Medellín, Colombia, August 22-25, 2016, **invited talk**.
- [I31] M. Ferrera, M. Clerici, N. Kinsey, A. Shaltout, C. DeVault, **L. Caspani**, J. Kim, R. Kaipurath, T. Roger, E. G. Carnemolla, D. Faccio, V. Shalaev, A. Boltasseva, “Dynamic Plasmonics with Aluminum-Doped Zinc Oxide”, *META’16, the 7th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Malaga, Spain, July 25-28, 2016, **invited talk**.
- [I30] M. Kues, C. Reimer, P. Roztocki, B. Wetzl, Y. Bromberg, B. E. Little, S. T. Chu, D. J. Moss, **L. Caspani**, R. Morandotti, “Integrated Quantum Frequency Comb Source of Entangled Qubits”, *META’16, the 8th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Malaga, Spain, July 25-28, 2016, **invited talk**.
- [I29] M. Kues, C. Reimer, P. Roztocki, B. Wetzl, Y. Bromberg, B. E. Little, S. T. Chu, D. J. Moss, **L. Caspani**, R. Morandotti, “Integrated frequency combs for optical quantum state generation”, *Nano-Tera workshop on microresonator frequency combs: theory and applications*, Monte Verità, Switzerland, July 6-10, 2016, **invited talk**.
- [I28] P. Roztocki, M. Kues, C. Reimer, B. Wetzl, B. E. Little, S. T. Chu, T. Johnston, Y. Bromberg, **L. Caspani**, D. J. Moss, R. Morandotti, “Quantum state generation via integrated frequency combs”, *7th International Conference on Optical, Optoelectronic and Photonic Materials and Applications*, Montreal, Canada, June 13-17, 2016, **invited talk**.
- [I27] P. Roztocki, M. Kues, C. Reimer, B. Wetzl, F. Grazioso, B. E. Little, S. T. Chu, T. Johnston, Y. Bromberg, **L. Caspani**, D. J. Moss, R. Morandotti, “Quantum state generation via integrated frequency combs”, *18th European Conference on Integrated Optics*, Warsaw, Poland, May 18-20, 2016, **invited talk**.
- [I26] **L. Caspani**, “Multiplexed quantum states on chip: towards integrated quantum frequency combs”, *7th Annual SU2P Symposium, University of Edinburgh*, Edinburgh, UK, April 4-5, 2016, **invited talk**.
- [I25] R. Morandotti, **L. Caspani**, C. Reimer, M. Kues, P. Roztocki, M. Clerici, B. Wetzl, Y. Jestin, M. Ferrera, M. Peccianti, A. Pasquazi, L. Razzari, B. E. Little, S. T. Chu, D. J. Moss, “Quantum frequency comb on a chip”, *VIII International TecnoLaser Event*, Havana, Cuba, March 29-April 1, 2016, **invited talk**.
- [I24] P. Roztocki, C. Reimer, M. Kues, **L. Caspani**, M. Clerici, M. Ferrera, M. Peccianti, A. Pasquazi, L. Razzari, B.E. Little, S.T. Chu, D.J. Moss, and R. Morandotti, “Integrated Optical Combs: Towards Single Photon Applications”, *Photonics North*, Ottawa, Canada, June 9-11, 2015, **invited talk**.
- [I23] C. Reimer, M. Kues, **L. Caspani**, B. Wetzl, P. Roztocki, M. Clerici, Y. Jestin, M. Ferrera, M. Peccianti, A. Pasquazi, B.E. Little, S.T. Chu, D.J. Moss, and R. Morandotti, “Novel Classical and Quantum Phenomena in Nonlinear Ring Resonators”, *Energy Materials Nanotechnology (EMN) on optoelectronics*, Beijing, China, April 20-23, 2015, **invited talk**.
- [I22] **L. Caspani**, C. Reimer, M. Clerici, M. Ferrera, M. Kues, M. Peccianti, A. Pasquazi, L. Razzari, B. E. Little, S. T. Chu, D. J. Moss, R. Morandotti, “CMOS-compatible source of heralded single photons for multiplexed quantum cryptography”, *SPIE/COS Photonics Asia*, Beijing, China, October 9-11, 2014, **invited talk**.
- [I21] **L. Caspani**, C. Reimer, M. Clerici, M. Peccianti, A. Pasquazi, M. Ferrera, L. Razzari, D. Duchesne, B. E. Little, S. T. Chu, D. J. Moss, and R. Morandotti, “Nonlinear frequency conversion in glass integrated devices: novel applications”, *Advanced Architectures in Photonics*, Prague, Czech Republic, September 21-24, 2014, **invited talk**.
- [I20] **L. Caspani**, A. Pasquazi, M. Peccianti, C. Reimer, M. Clerici, M. Ferrera, L. Razzari, D. Duchesne, B.

- E. Little, S. T. Chu, D. J. Moss, and R. Morandotti, "CMOS Compatible Nonlinear Optics Based on Hydex", *OECC/ACOFT*, Melbourne, Australia, July 6-10, 2014, **invited talk**.
- [I19] M. Clerici, D. Faccio, **L. Caspani**, E. Rubino, M. Peccianti, L. Razzari, T. Ozaki, and R. Morandotti, "Wave Mixing of Intense Terahertz Fields and Optical Pulses in Solids: Parametric Interactions, Nonlinear THz Imaging, and 3D-Mapping", *SPIE Optics+photonics*, San Diego, US, August 25-29, 2013, **invited talk**.
- [I18] S. P. Ho, M. Peccianti, M. Clerici, A. Pasquazi, **L. Caspani**, F. Buccheri, J. Ali, A. Busacca, T. Ozaki, and R. Morandotti, "Time-resolved approach for exact reconstruction of Sub-wavelength THz Sources via Knife-edge Technique", *Photonics North*, Ottawa, Canada, June 3-5, 2013, **invited talk**.
- [I17] M. Clerici, M. Peccianti, B. E. Schmidt, **L. Caspani**, M. Shalaby, M. Giguère, O. Yaakobi, A. Lotti, F. Vidal, A. Couairon, F. Légaré, T. Ozaki, D. Faccio, and R. Morandotti, "High-field THz pulses from laser-induced ionization and their nonlinear interaction with optical fields", *Latin America Optics & Photonics Conference (LAOP)*, São Sebastião, Brazil, November 10-13, 2012, **invited talk**.
- [I16] M. Clerici, M. Peccianti, B. E. Schmidt, **L. Caspani**, M. Shalaby, M. Giguère, O. Yaakobi, A. Lotti, F. Vidal, A. Couairon, F. Légaré, T. Ozaki, D. Faccio, and R. Morandotti, *IPOS Symposium*, Sidney, Australia, November 5-6, 2012, **plenary talk**.
- [I15] M. Clerici, M. Peccianti, B. E. Schmidt, **L. Caspani**, M. Shalaby, M. Giguère, O. Yaakobi, A. Lotti, A. Couairon, F. Légaré, T. Ozaki, D. Faccio, and R. Morandotti, "High-field THz pulses from laser-induced ionization and their nonlinear interaction with optical fields", *COFIL International Symposium on Filamentation*, Tucson, US, October 7-12, 2012, **invited talk**.
- [I14] M. Clerici, M. Peccianti, M. Shalaby, **L. Caspani**, A. Lotti, A. Couairon, D. Cooke, D. Faccio, R. Morandotti and T. Ozaki, "Enhanced Detection of Broadband Terahertz Field by Filamentation of Chirped Optical Pulses", *COFIL International Symposium on Filamentation*, Tucson, US, October 7-12, 2012, **invited talk**.
- [I13] M. Clerici, M. Peccianti, B. E. Schmidt, **L. Caspani**, M. Shalaby, M. Giguère, O. Yaakobi, A. Lotti, F. Vidal, A. Couairon, F. Légaré, T. Ozaki, D. Faccio, and R. Morandotti, "High-field THz pulses from laser-induced ionization and their nonlinear interaction with optical fields", *Ultrafast Intense Laser Science Mini-Symposium*, Québec, Canada, July 18-20, 2012, **invited talk**.
- [I12] L. Lugiato, J.-L. Blanchet, E. Brambilla, **L. Caspani**, P. Di Trapani, F. Ferri, A. Gatti, O. Jedrkiewicz, and D. Magatti, "Natural and man-made in quantum imaging", *IEEE Photonics Society Summer Topicals Meetings Series*, Montreal, Canada, July 18-20, 2011, **invited talk**.
- [I11] L.A. Lugiato, **L. Caspani**, E. Brambilla and A. Gatti, "Quantum imaging and spatio-temporal correlations", *XIII International Conference on Quantum Optics and Quantum Information*, Kiev, Ukraine, May 28-June 1, 2010, **invited talk**.
- [I10] L.A. Lugiato, A. Gatti, E. Brambilla, **L. Caspani**, P. Di Trapani, O. Jedrkiewicz, F. Ferri and D. Magatti, "Some topics in quantum imaging", *WIO09 Euro-American Workshop on Information Optics*, Paris, France, July 20-24, 2009, **invited talk**.
- [I9] A. Gatti, E. Brambilla, **L. Caspani**, O. Jedrkiewicz and L. A. Lugiato, "X-entanglement: the non-factorable spatio-temporal structure of biphoton correlation", *11th International Conference on Squeezed States and Uncertainty relation*, Olomouc, Czech Republic, June 21-25, 2009, **invited talk**.
- [I8] L.A. Lugiato, A. Gatti, E. Brambilla, **L. Caspani**, P. Di Trapani, O. Jedrkiewicz, F. Ferri and D. Magatti, "Some topics in quantum imaging", *11th International Conference on Squeezed States and Uncertainty relation*, Olomouc, Czech Republic, June 21-25, 2009, **invited talk**.
- [I7] L.A. Lugiato, A. Gatti, E. Brambilla, **L. Caspani**, O. Jedrkiewicz and P. Di Trapani, "Space-time quantum correlations in optical parametric down-conversion and applications to quantum imaging and quantum metrology", *Workshop on Optics and New Materials*, Hong Kong, December 14-16, 2008, **invited talk**.
- [I6] A. Gatti, E. Brambilla, **L. Caspani**, O. Jedrkiewicz and L.A. Lugiato, "X-Entanglement of PDC photon pairs", *Italian Quantum Information Science Conference*, Camerino, Italy, October 24-29, 2008, **invited talk**.
- [I5] L.A. Lugiato, A. Gatti, E. Brambilla, **L. Caspani** and O. Jedrkiewicz, "High-sensitivity imaging with quantum spatial correlation of twin beams", *EOS Topical Meeting on Advanced Imaging Technique*, Lille, France, September 12-14, 2007, **invited talk**.
- [I4] O. Jedrkiewicz, G. Molina Terriza, E. Brambilla, **L. Caspani**, A. Gatti, L.A. Lugiato, and P. Di Trapani,

- “CCD-based detection of quantum spatial correlation of twin beams for high-sensitivity imaging”, *SPIE Quantum Communications and Quantum Imaging V*, San Diego, August 26-29, 2007, **invited talk**.
- [I3] E. Brambilla, A. Gatti, **L. Caspani**, O. Jedrkiewicz and L. Lugiato, “Quantum spatial correlations in parametric down-conversion and detection of faint images”, *Central European Workshop on Quantum Optics*, Palermo, Italy, June 1-5, 2007, **invited talk**.
- [I2] E. Brambilla, A. Gatti, **L. Caspani** and L.A. Lugiato, “Quantum imaging and the detection of weak objects”, *10th International Conference on Squeezing and Uncertainty Relations*, Bradford, UK, March 31-April 4, 2007, **invited talk**.
- [I1] E. Brambilla, A. Gatti, **L. Caspani** and L.A. Lugiato, “Quantum imaging and the detection of weak objects”, *Quantum Mechanics: From Fundamental problems to applications*, Bertinoro, Italy, December 3-8, 2006, **invited talk**.

Regular contributions

- [C111] D. Adamou, L. Hirsch, T. Shields, S. Yoon, A. C. Dada, J. M. R. Weaver, D. Faccio, **L. Caspani**, M. Peccianti, and M. Clerici, “Quantum-enhanced THz time-domain sensing”, *Ultrafast Optics UFO XIV*, Azores, Portugal, October 5-10, 2025.
- [C110] T. Dickinson, I. Afxenti, G. Astrauskaite, L. Hirsch, S. Nerenberg, O. Jedrkiewicz, A. Gatti, D. Faccio, C. Müllenbroich, M. Clerici, and **L. Caspani**, “Quantum-Enhanced Second Harmonic Generation pumped by Parametric Down Conversion Beyond the Photon Pairs Regime”, *Optica Nonlinear Optics Topical Meeting*, Honolulu, Hawaii, USA, August 04-07, 2025.
- [C109] T. Dickinson, I. Afxenti, G. Astrauskaite, L. Hirsch, S. Nerenberg, O. Jedrkiewicz, D. Faccio, C. Müllenbroich, A. Gatti, M. Clerici, and **L. Caspani**, “Quantum-enhanced second harmonic generation beyond the photon pairs regime”, *CLEO/Europe-EQEC 2025*, Munich, Germany, June 23-27, 2025.
- [C108] D. Adamou, L. Hirsch, T. Shields, S. Yoon, A. C. Dada, J. M. R. Weaver, D. Faccio, M. Peccianti, **L. Caspani**, M. Clerici, “Quantum-enhanced time-domain sampling of THz fields”, *CLEO/Europe-EQEC 2025*, Munich, Germany, June 23-27, 2025.
- [C107] T. Dickinson, I. Afxenti, G. Astrauskaite, L. Hirsch, S. Nerenberg, O. Jedrkiewicz, D. Faccio, C. Müllenbroich, A. Gatti, M. Clerici, and **L. Caspani**, “Comparing Classical and Entangled Second Harmonic Generation Beyond the Photon Pairs Regime”, *Optica Quantum 2.0 Conference*, San Francisco, California, USA, June 1-5, 2025.
- [C106] D. Adamou, L. Hirsch, T. Shields, S. Yoon, A. C. Dada, J. M. R. Weaver, D. Faccio, M. Peccianti, **L. Caspani**, M. Clerici, “Quantum-Enhanced THz Time-Domain Spectroscopy”, *Optica Quantum 2.0 Conference*, San Francisco, California, USA, June 1-5, 2025.
- [C105] S. Anderson, P.H. Moriya, **L. Caspani**, J. E. Hastie, “Sub-kHz linewidths of a dual-locked ICSRO VECSEL”, *SPIE Photonics West LASE*, San Francisco, California, USA, January 19-22, 2025.
- [C104] T. Dickinson, I. Afxenti, G. Astrauskaite, L. Hirsch, S. Nerenberg, O. Jedrkiewicz, A. Gatti, D. Faccio, C. Müllenbroich, M. Clerici, and **L. Caspani**, “Quantum-enhanced two-photon interactions beyond the photon pairs regime”, *Frontiers in Optics + Laser Science*, Denver, Colorado, USA, September 23-26, 2024.
- [C103] D. Adamou, L. Hirsch, J. M. R. Weaver, D. Faccio, **L. Caspani**, M. Peccianti, M. Clerici, Photonex, “Large (>3 dB) noise reduction factors from sub-shot noise quantum correlations in <200 fs pulses”, *SPIE Photonex*, Glasgow, UK, 24-26 October, 2023.
- [C102] I. Afxenti, T. Dickinson, G. Astrauskaite, L. Hirsch, S. Nerenberg, C. Müllenbroich, D. Faccio, A. Gatti, M. Clerici, **L. Caspani**, “Multimode, high-photon number, quantum-enhanced sum frequency generation”, *SPIE Photonex*, Glasgow, UK, 24-26 October, 2023.
- [C101] S. Anderson, P.H. Moriya, **L. Caspani**, J. E. Hastie, “Intra-Cavity Singly-Resonant OPO Pumped by a Visible VECSEL for low-Noise Down-Conversion to 1.55 μm ”, *Optica Laser Congress, Advanced Solid State Lasers (ASSL)*, Tacoma, Washington, US, 8-12 October, 2023.
- [C100] T. Shields, A. C. Dada, L. Hirsch, S. Yoon, J. M. R. Weaver, D. Faccio, **L. Caspani**, M. Peccianti, M. Clerici, “Electro-Optical Sampling of Single-Cycle THz Fields with Single-Photon Detectors”, *Quantum, Atomic and Molecular Physics - QuAMP (Institute of Physics)*, Glasgow, UK, September 12-13, 2023, (poster).

- [C99] D. Adamou, L. Hirsch, J. M. R. Weaver, D. Faccio, **L. Caspani**, M. Peccianti, M. Clerici, “Large (>3 dB) noise reduction factors from sub-shot noise quantum correlations in <200 fs pulses”, *Quantum, Atomic and Molecular Physics - QuAMP (Institute of Physics)*, Glasgow, UK, September 12-13, 2023, (poster).
- [C98] I. Afxenti, L. Yu, T. Shields, A. C. Dada, D. Faccio, D. Richardson, **L. Caspani**, M. Clerici “Propagation of entangled photon pairs at 2 μm through a 1 km nested antiresonant nodeless fibre”, *Quantum, Atomic and Molecular Physics - QuAMP (Institute of Physics)*, Glasgow, UK, September 12-13, 2023, (poster).
- [C97] T. Dickinson, I. Afxenti, G. Astrauskaite, L. Hirsch, S. Nerenberg, C. Müllenbroich, O. Jedriekiewicz, D Faccio, A. Gatti, M. Clerici, **L. Caspani**, “Entangled sum-frequency generation from bright twin beams”, *Quantum, Atomic and Molecular Physics - QuAMP (Institute of Physics)*, Glasgow, UK, September 12-13, 2023, (poster).
- [C96] A. K. Kashi, **L. Caspani**, and M. Kues, “Hong-Ou-Mandel Effect between a Thermal Field and a Heralded Single-photon State: Improved visibility by Multiphoton Components,” *CLEO/Europe-EQEC*, Munich, Germany, June 26-30, 2023.
- [C95] N. Montaut, P. Roztock, M. Chemnitz, S. Sciara, B. MacLellan, B. Fischer, Y. Jestin, L. R. Cortes, Y. Zhang, J. Azaña, R. Morandotti, S. T. Chu, D. J. Moss, C. Reimer, M. Kues, B. E. Little, H. Yu, Z. Wang, **L. Caspani**, B. Wetz, W. J. Munro, S. Loranger, R. Kashyap, and A. Cino, “Telecom-compatible, affordable and scalable quantum technologies,” *IEEE Photonics Conference (IPC)*, Vancouver, Canada, November 13-17, 2022.
- [C94] A. Khodadad Kashi, **L. Caspani**, M. Kues, “Improved Visibility of Spectral Two-photon Quantum Interference Introduced by Multiphoton Components”, *Frontiers in Optics + Laser Science*, Rochester, NY, USA, October 17-20, 2022.
- [C93] T. Dickinson, I. Afxenti, G. Astrauskaite, S. K. Rajendran, D. Faccio, C. Müllenbroich, M. Clerici, **L. Caspani**, “Towards enhanced nonlinear imaging with entangled photons”, *Photon2022*, Nottingham, UK, August 30-September 2, 2022 (poster).
- [C92] T. Shields, A. C. Dada, L. Hirsch, S. Yoon, J. M. R. Weaver, D. Faccio, **L. Caspani**, M. Peccianti, and M Clerici, “Electro-optical sampling of single-cycle THz fields with single-photon detectors”, *Photon2022*, Nottingham, UK, August 30-September 2, 2022.
- [C91] A. Dada, T. Shields, S. Prabhakar, M. Ebrahim, J. Kaniewski, G. G. Taylor, D. Morozov, K. Erotokritou, S. Miki, M. Yabuno, H. Terai, C. Gawith, M. Kues, **L. Caspani**, R. H. Hadfield, D. Faccio, M. Clerici, “Generation and device-independent verification of near-maximal polarisation entanglement at 2.1 μm ”, *Photon2022*, Nottingham, UK, August 30-September 2, 2022.
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