Andrea Blanco-Redondo, Ph.D.

Education

- Ph.D. Elec. Eng., *University of Basque Country*, Spain, 2014 (including 1 year at the *University of Sydney*).
  - PhD Thesis Title: "Linear and nonlinear devices in silicon photonic waveguides"
  - Distinctions: Summa Cum Laude, International Doctorate.
- M.Sc. Elec. Eng, *University of Valladolid*, Spain, 2006 (including 1 year at *Aston University*, UK).
  - MSc Thesis title: "Distributed Raman amplification for long-haul repeaterless optical systems"
  - Distinction: Summa Cum Laude

Experience in Academic and Industrial Research

Nokia Bell Labs, Murray Hill, New Jersey, US

Oct. 2019 - Present
Department Head, Silicon Photonics
- Leading research in integrated photonics and managing team of members of the technical staff.

May 2019 - Present
Member of the Technical Staff / Integrated Photonics Researcher
- Experimental research on ultrafast lasers, nonlinear devices, topological quantum states of light.

School of Physics, University of Sydney, Sydney, Australia

Oct. 2018 - March 2019
Professor Harry Messel Research Fellow
Senior Lecturer (Level C4, roughly equivalent to US Associate Professor)
- Lead Chief Investigator of *ARC Discovery Project* on pure-quartic soliton laser.
- Leader of the topological quantum nanophotonics research project.
- Experimental demonstration of topologically protected entangled photonic states.

Oct. 2016 - Oct. 2018
Professor Harry Messel Research Fellow
Lecturer (Level B5)
- Lead Chief Investigator of *ARC Discovery Project* on pure-quartic soliton laser.
- Experimental demonstration of topologically protected multiphoton quantum states.
- 74 hrs face-to-face teaching and supervision of 10 undergrad and 5 postgraduate students.

Feb. 2015 - Oct. 2016
Research Fellow
Lecturer (Level B1)
- Lead researcher of *Frontiers on Nanophotonics* project between U. Sydney and Technion.
- Experimental discovery of pure-quartic solitons.

Jan. 2013 - Feb. 2014
Marie Curie Fellow (Visiting researcher at *CUDOS*)
- First observation of soliton compression in silicon.
- Discovery of nonlinear temporal broadening due to free-carrier and group velocity dispersion.

Tecnalia Research & Innovation, Bilbao, Spain

Mar. 2014 – Feb. 2015
Senior Photonics Researcher, Aerospace Unit
Project Manager, Aerospace Unit.
- Led collaborative project on plasmonic-enhanced nanophotonic sensors with Donostia International Physics Centre, Nanogune, and University of the Basque Country.
- Cleanroom fab experience: nanopatterned hydrophobic and *super-black* surfaces.

Jun.2007 – Mar. 2014
Photonics Researcher, Telecom Unit
Project Manager, Telecom Unit.
• Managed and carried out research for private companies in optical buffering (slow-light photonic crystal waveguides), all-optical switching, gigabit capable optical networks (GPON)…
• Contributed significantly to product development phase of first GPON analyzer.
• Conception and coordination of European research proposals in photonics.

European Commission, Brussels, Belgium

May 2014 – June 2014
Expert in photonics for the evaluation of research projects
• Evaluated European photonics research proposals for *Horizon2020* (>4M€ proposals)

Telefonica Research and Development, Valladolid, Spain

April 2006 – September 2006
Research Internship
Research on image processing and recognition, and image search engines at *Telefonica* (one of the largest telecommunication companies in the world)

Selected top-ten career journal publications (full publication list at the end of the document)

C. Doyle, W.-W. Zhang, M. Wang, B. A. Bell, S. D. Bartlett, and A. Blanco-Redondo, "Biphoton entanglement of topologically-distinct modes," ***Phys. Rev. A*** 105, 023513 (2022).

A. F. J. Runge, Darren D. Hudson, Kevin K. K. Tam, C. Martijn de Sterke, and A. Blanco-Redondo, "The pure-quartic soliton laser", ***Nature Photonics*** 14, 492-497 (2020).

A. Blanco-Redondo, "Topological Nanophotonics: Toward Robust Quantum Circuits", ***Proceedings of the IEEE*** 108 (5), 837–849 (2020).

M. Wang, C. Doyle, B. Bell, M. J. Collins, E. Magi, B. J. Eggleton, M. Segev, and A. Blanco-Redondo, "Topologically protected entangled photonic states", ***Nanophotonics*** 8 (8), 1327–1335 (2019).

A. Blanco-Redondo, B. Bell, D. Oren, M. Segev, and B Eggleton, "Topological protection of biphoton states", ***Science*** 362, 568-571 (2018).

A. Blanco-Redondo, C. Martijn de Sterke, J. E. Sipe, T. F. Krauss, B. J. Eggleton, and C. Husko, "Pure-quartic solitons", ***Nature Communications*** 7, 10427 (2016).

A. Blanco-Redondo, I. Andonegui, M. J. Collins, G. Harari, Y. Lumer, M. Rechtsman, B. J. Eggleton, and M. Segev, "Topological optical waveguiding in silicon and the transition between topological and trivial defect states", ***Physical Review Letters*** 116 (16), 163901 (2016).

A. Blanco-Redondo, C. Husko, D. S. Eades, Y. Zhang , J. Li , T. Krauss , B. Eggleton, "Observation of Soliton Compression in Silicon Photonic Crystals", ***Nature Communications*** 5, 3160 (2014).

A. Blanco-Redondo, D. Eades, J. Li, S. Lefrancois, T. Krauss, B. Eggleton, C. Husko, Controlling free-carrier temporal effects in silicon by dispersion engineering, ***Optica*** 1, 299-306 (2014).

A. Blanco-Redondo, P. Sarriugarte, A. Garcia-Adeva, J. Zubia, R. Hillenbrand, Coupling mid-IR light from a photonic crystal waveguide to transmission lines, ***App. Phys. Lett.*** 104, 011105 (2014).

Patents

DUAL-RING RESONATORS FOR OPTICAL FREQUENCY COMB GENERATION, Andrea Blanco Redondo, Ali Eshaghian Dorche, Brian Stern (US 17/150354)

LASER CAVITY FOR THE GENERATION OF SOLITONS ARISING FROM HIGHER-ORDERS OF DISPERSION, A. Blanco Redondo, D. Hudson, A. Runge, M. de Sterke (US 62/986,672)

Teaching and Supervising Experience

74 hours face-to-face teaching (191 teaching load hours) at U. Sydney, student evaluation 4.4/5:

Advanced Optical Physics (PHYS 4AOP) - 4th year, School of Physics, U. Sydney (2017, 2018).
Senior Experimental Physics (PHYS3yyy) - 3th year, School of Physics, U.Sydney (2017).
Physics Bridging Course – 1st year, School of Physics, U. Sydney (2016, 2017).
Fundamentals of Physics (PHYS 1001) – 1st year, School of Physics, U. Sydney (2015).

Supervised 15 students at PhD (3), Honours (2), and undergraduate levels (10).

Selected Awards and Distinctions

- Jan 2020 – Dec 2022 Optica (formerly OSA) Director at Large – Member of Optica Board of Directors
- 2018 OSA Ambassador distinction - Optical Society of America's recognition to leading ECRs.
- 2016 Geoff Opat Prize - The Australian Optical Society Early Career Researcher Prize.
- 2014 Ada Byron Award - 1 of 2 Spanish nationwide awards to leading women in technology.
- Best Paper Award of IEEE Mediterranean Microwave Symposium 2009, Tangiers, Morocco.
- Best Paper Award of IEEE NETWORKS 2008, Budapest, Hungary.

Fellowships

- 2018 Robinson Fellowship - University of Sydney's most prestigious ECR fellowship (~1.5M$).
- 2016 Professor Harry Messel Research Fellowship - U. Sydney 3-year fellowship (7% success rate).
- 2012 Marie Curie Fellowship (TIFER PCOFUND-GA- 2010-267200) - European Commission.

Competitive Research Funding

I have secured close to 2 Million USD as Chief investigator in highly competitive research grants:

Year awarded	Role	Title	Funding Agency / Scheme	Budget
2020	First Principal Investigator (PI)	Robust silicon photonic circuits	New Jersey Department of Labor and Workforce Development	110,000 USD
2020	PI	The Pure-Quartic Soliton Laser	US Air Force Office of Scientific Research (AFOSR)	140,000 USD
2018	Sole PI	Robinson Fellowship: Andrea Blanco-Redondo	University of Sydney / Robinson Fellowship	1,500,000 AUD
2018	Sole PI	Travelling Lecturer Grant	Optical Society of America / Travelling Lecturer Scheme	12,000 USD
2017	Lead PI	A brighter future: the pure-quartic soliton laser	Australian Research Council / Discovery Project	420,000 AUD
2016	Sole PI	Unleashing the power of a new solitary wave	University of Sydney / Professor Harry Messel Research Fellowship	400,000 AUD
2016	PI	Structurally induced Scattering of light by light	Universities Australia-DAAD / Australia-Germany Joint Cooperation Scheme	25,000 AUD
2014	PI	Plasmonic enhanced nanophotonic sensors	Basque Government / nanoIKER ETORTEK	50,000 EURO
2012	Sole PI	Light2chip	European Commission / Marie Curie program	120,000 EURO

Popular press and media

- My research has been featured in popular and specialized press including: The Register, The Conversation, The Daily Telegraph, Xinhua, Laser Focus World, Optics and Photonics News, Optics org, Phys org, NovusLight Today, and many more (full list available upon request).
- Interview for El Mundo Spanish national newspaper.
- Live interview in ETB, Spanish national television (30 min).
- Live interview in Cadena SER, Spanish national radio (10 min).
- Interview for ABC World News, Australian national radio (few last minutes of the program).

Service, Leadership, Engagement

- Member of the Optica Board of Directors (Jan 2020 – Dec 2022)
- [redacted]
- Co-founder of "The OSA Ambassador Equity in Optics and Photonics Scholarship"
- Primary Guest Editor of IEEE Journal of Selected Topics in Quantum Electronics (JSTQE) Special Issue on *Integrated Nonlinear Photonics* (To be published beginning 2023)
- Guest Editor of APL Photonics Special Issue on *Integrated Quantum Photonics* (TBP late 2021)
- Associate Editor for the OSA Continuum journal (Jun 2018 – June 2021)
- OSA Ambassador (Most active year 2018, still involved in these activities)
- Chair (2017) and member (2016) of the Esther Hoffman Beller Medal committee.
- Member of the Technical Program Committee (TPC) for: *CLEO US* – FS5 (2019 – 2021), *CLEO Europe* – EF (2019, 2021), *CLEO PacificRim* (2020), *SPIE Photonics West* – Integrated Photonics Conference (2019-2021), *Advanced Photonics Congress* – PSC (2020), ...
- Co-organizer of the following conferences/symposia: METANANO 2021 (13-17 Sept. 2021, Tbilisi, Georgia), Quantum Photonics Connections Workshop (24-25 Nov 2016, Sydney, Australia), Topological and Nonreciprocal Photonics Workshop (9 Nov. 2016, Sydney, Australia).
- Speaker at diversity events: Girls in Physics (Jul. 2018 and Nov. 2018, Sydney, Australia), Science Teachers Workshop (6 Nov. 2018, Sydney) Forum for Equality (6 Oct 2014, Bilbao, Spain), Cross Border Doctoral Program (2014, Bilbao), others…
- Reviewer for US Department of Energy Office of Basic Sciences DOE-BES (2019-present)
- Public talks:
    - "Bright Lights" Sydney Science Forum 26 Apr. 2017, Westmead Education & Conference Centre Auditorium, Parramatta, Australia.
    - "Silicon Nanophotonics" Australian Institute of Physics & Royal Australian Chemical Institute Nanoscience Event 2 Aug. 2016, Sydney Nanoscience Hub, Sydney, Australia.
    - Opening of the Bilbao Science Week 12 Oct. 2014, Euskalduna Palace, Bilbao, Spain.

Plenary, Keynote, and Invited Presentations (selected list)

Plenary Speaker at *SPIE Photonics West 2022*, 24 Jan 2022, San Francisco, US.

Keynote speaker at: *Quantum Simulations and Enabling Technology Workshop* (QUSENT 2019) (2-4 Oct 2019, Sydney, Australia); *IPOS Symposium*, Sydney (21 Nov. 2017); *MINAP* 2012 (Jan 2012, Trento, Italy)

Invited lecturer at: *ePIXfab Silicon Photonics Summer School* by Ghent University (June 17, 2020); *Metamaterials Doctorate School* by CUNY (Oct 3, 2020).

Invited speaker at: CLEO US (2020, 2021); CLEO PacRim (2022); SPIE Optics & Photonics (2020, 2022); Advanced Photonics Congress (2020, 2021); IEEE Photonics North (2020); OFC (2019); *Workshop on Novel Concepts in Photonics Research* (NCPR 2019) (13 Mar. 2019, Ein Gedi, Israel); *Frontiers in*

Nanophotonics Workshop (6 March 2018, Canberra, Australia); *Southern Hemisphere Soliton Experience Symposium* (18 Apr. 2017, Macquarie U., Australia); *Nano-optical Systems Exploiting Nonlinear Effects Topical Workshop* (26 Sept. 2016, Schloss Oppurg, Germany); *URSI General Assembly*, (Aug. 2011, Istambul, Turkey).

Invited seminar at: *University of Arizona* (Apr. 10, 2021); *MIT* (Jun. 3, 2020); *ITMO University* (Jun. 19, 2020); *Advanced Science Research Center at CUNY* (Jan 30, 2020), *ICFO* (6 Oct. 2016); *University of York* (Sep 30, 2016); *Technion Israel Institute of Technology* (July 5, 2015)

Full Publication List

- **Journal articles**

B. Zhen*, A. Blanco-Redondo*, A. Szameit*, P. Genevet*, "Getting topological photonics out of the laboratory" ***Nature Communications* 13,** 2249 (2022).

C. Doyle*, W.-W. Zhang*, M. Wang, B. A. Bell, S. D. Bartlett, and A. Blanco-Redondo, "Biphoton entanglement of topologically-distinct modes," ***Phys. Rev. A*** 105, 023513 (2022).

Hannah Price*, Yidong Chong*, Alexander Khanikaev*, Henning Schomerus, Lukas J. Maczewsky, Mark Kremer, Matthias Heinrich, Alexander Szameit, Oded Zilberberg, Yihao Yang, Baile Zhang, Andrea Alù, Ronny Thomale, Iacopo Carusotto, Philippe St-Jean, Alberto Amo, Avik Dutt, Luqi Yuan, Shanhui Fan, Xuefan Yin, Chao Peng, Tomoki Ozawa, and Andrea Blanco-Redondo, "Roadmap on topological photonics" ***J. Phys. Photonics*** in press https://doi.org/10.1088/2515-7647/ac4ee4

J. Lourdesamy, A. Runge, D.D. Hudson, A. Blanco-Redondo, and C.M. de Sterke "Spectrally periodic pulses for enhancement of optical nonlinear effects" ***Nature Physics*** 18, 59-66 (2022)

A. S. Clark, A. Blanco-Redondo, I Aharonovich, "Special Topic on Integrated Quantum Photonics", ***APL Photonics*** 6 (12), 120401 (2021)

C.M. de Sterke, A.F.J. Runge, D.D .Hudson, and A. Blanco-Redondo, "Pure-quartic solitons and their generalizations – Theory and experiments," ***APL Photonics*** 6(9), 091101 (2021)

A. F. J. Runge, T. J. Alexander, H. P. Talathi, D. D. Hudson, A. Blanco-Redondo, and C. Martijn de Sterke**, "**Generalized self-similar propagation and amplification of optical pulses in nonlinear media with high-order normal dispersion**,"** ***Phys. Rev. A*** 104 (1), 013506 (2021)

(Frontispiece) M. T. A. Khan, H. Li, N. N. M. Duong, A. Blanco-Redondo, and S. Atakaramians, "3D-Printed Terahertz Topological Waveguides," ***Advanced Materials Technologies*** 6(7), 2170040 (2021)

E. Sahin, A. Blanco-Redondo, D. K. T. Ng, B. J. Eggleton, D. T. H. Tan, "Wideband spectral enhancement through on-chip Bragg-soliton dynamics," ***Advanced Photonics Research***, 2100107 (2021).

A. F. J. Runge, Y. Qiang, T. J. Alexander, D. D. Hudson, A. Blanco-Redondo, and C. Martijn de Sterke**, "**Infinite hierarchy of solitons: Interaction of Kerr nonlinearity with even orders of dispersion**,"** ***Phys. Rev. Research*** 3, 013166 (2021)

(**Front Cover**) A. F. J. Runge, Darren D. Hudson, Kevin K. K. Tam, C. Martijn de Sterke and A. Blanco-Redondo, "The pure-quartic soliton laser", ***Nature Photonics*** 14, 492-497 (2020).

(**Invited**) A. Blanco-Redondo, "Topological Nanophotonics: Toward Robust Quantum Circuits", ***Proceedings of the IEEE*** 108 (5), 837–849 (2020).

K.K.K. Tam, T. Alexander, A. Blanco-Redondo and C. Martijn de Sterke, "Generalized Dispersion Kerr Solitons" ***Phys. Rev. A*** 101 (4), 043822 (2020).

A. F. J. Runge, T. J Alexander, J. Newton, P. A. Alavandi, D. D Hudson, A. Blanco-Redondo and C Martijn de Sterke, "Self-similar propagation of optical pulses in fibers with positive quartic dispersion," **Optics Letters 45** (13), 3365-3368 (2020).

J. P. Lourdesamy, A. F. J. Runge, T. J. Alexander, D. D. Hudson, A. Blanco-Redondo and C. Martijn de Sterke, "Polychromatic soliton molecules," **arXiv**:2007.01351 (2020)

(**Invited**) M. Wang, C. Doyle, B. Bell, M. J. Collins, E. Magi, B. J. Eggleton, M. Segev, and A. Blanco-Redondo, "Topologically protected entangled photonic states," ***Nanophotonics*** 8(8), 1327-1335 (2019).

(Front Cover) E. Sahin, A. Blanco-Redondo, P. Xing, D. K. T. Ng, C. E. Png, D. T. H. Tan, and B. J Eggleton, Bragg soliton compression and fission on a CMOS-compatible ultra-silicon-rich nitride, ***Laser and Photonics Reviews***, 1900114, (2019).

K.K.K. Tam, T. Alexander, A. Blanco-Redondo, and Martijn de Sterke, Stationary and Dynamical Properties of Pure-Quartic Solitons, ***Optics Letters*** 44 (13), 3306-3309 (2019).

A. Blanco-Redondo, B. Bell, D. Oren, M. Segev, and B Eggleton, Topological protection of biphoton states, ***Science*** 362, 568-571 (2018).

C.-W. Lo, A. Stefani, C. Martijn de Sterke, and A. Blanco-Redondo, Analysis and design of fibers for pure-quartic solitons, ***Optics Express*** 26(6), 7786-7796 (2018).

A. Blanco-Redondo, I. Andonegui, M. J. Collins, G. Harari, Y. Lumer, M. Rechtsman, B. J. Eggleton, and M. Segev, Topological optical waveguiding in silicon and the transition between topological and trivial defect states, ***Physical Review Letters*** 116 (16), 163901 (2016).

A. Blanco-Redondo, C. Martijn de Sterke, J. E. Sipe, T. F. Krauss, B. J. Eggleton, and C. Husko, Pure-quartic solitons, ***Nature Communications*** 7, 10427 (2016).

A. Blanco-Redondo, P. Sarriugarte, A. Garcia-Adeva, J. Zubia, & R. Hillenbrand, Local field enhancement of mid-infrared light in a photonic-plasmonic structure, ***Journal of Lightwave Technology*** 33, 368-371 (2015).

S. Lefrancois, C. Husko, A. Blanco-Redondo, B. J. Eggleton, Nonlinear silicon photonics analyzed with the moment method, ***Journal of the Optical Society of America B*** 32 (2), 218-226 (2015).

A. Blanco-Redondo, C. Husko, D. S. Eades , Y. Zhang , J. Li , T. Krauss , B. Eggleton, Observation of Soliton Compression in Silicon Photonic Crystals, ***Nature Communications*** 5, 3160 (2014).

A. Blanco-Redondo, D. Eades, J. Li, S. Lefrancois, T. Krauss, B. Eggleton, C. Husko, Controlling free-carrier temporal effects in silicon by dispersion engineering, ***Optica*** 1, 299-306 (2014).

A. Blanco-Redondo, P. Sarriugarte, A. Garcia-Adeva, J. Zubia, R. Hillenbrand, Coupling mid-IR light from a photonic crystal waveguide to transmission lines, ***App. Phys. Lett.*** 104, 011105 (2014).

A. Blanco-Redondo, E. Areizaga, and J. Zubía, All-optical networks and switching technologies for a 3D videoconference system with the feeling of presence, ***Infocommunications Journal*** LXV, 20-26, (2010).

- **Popular Science Articles**

(**Featured**) A. Blanco-Redondo, Protecting photonic quantum states using topology, ***Photonics Spectra*** 53(8), pp. 30-34, August 2019.

- **Scholarly book chapters**

(**Invited**) A. Blanco-Redondo and J. Zubía, Photonic Band Gap Engineered Materials for Controlling the Group Velocity of Light, Advanced Photonic Sciences, Ed. InTech (2012).

- **Refereed conference papers**

I have published **>50 refereed conference** papers at major international conferences, **23 of them invited**. I have been recognized with 1 **SPIE Photonics West Plenary**, **3 CLEO postdeadlines**, **1 ECOC postdeadline**, and **2 Best Paper Awards** at IEEE conferences. I have led the majority of these, either as sole, first, or last author.

(Plenary) Andrea Blanco-Redondo, "Robust nonlinear and topological quantum photonics," Proc. SPIE PC12017, Complex Light and Optical Forces XVI, PC1201701 (9 March 2022); https://doi.org/10.1117/12.2619015

M. Mazur, N. K. Fontaine, R. Ryf, H. Chen, and A. Blanco-Redondo, "Impulse Response Measurement of a Few-Mode Fiber Using Superconducting Nanowire Single-Photon Detectors", Paper Tu3A.3, European Conference on Optical Communications (ECOC), 13-16 September 2021.

(Postdeadline) H. Chen, N. K. Fontaine, M. Mazur, L. Dallachiesa, Y. Zhang, H. Huang, D. Van Veen, V. Hoosma, A. Blanco-Redondo, R. Ryf, and D. Neilson, "140G/70G Direct Detection PON with >37 dB Power Budget and 40-km Reach Enabled by Colorless Phase Retrieval Full Field Recovery," Paper Th3C1-PD2.1, European Conference on Optical Communications (ECOC), 13-16 September 2021.

(Invited) C. Doyle, W.-W. Zhang, B. Bell, S. D. Bartlett, and A. Blanco-Redondo, "Topology: A New Degree of Freedom for Photonic Entanglement," Advanced Photonics Congress 2021, paper ITh2A.1, 26-30 Ju1y, 2021

(Invited) Andrea Blanco-Redondo, "Topology as a degree of freedom for multiphoton entanglement," Topological Matter Conference, June 28 – July 1, 2021

Antoine Runge, Darren Hudson, Joshua Lourdesamy, Kevin Tam, Long Qiang, Tristram Alexander, Andrea Blanco-Redondo, C. Martijn de Sterke, "Hybrid high-order dispersion for optical solitons," Proc. SPIE 11671, Real-time Measurements, Rogue Phenomena, and Single-Shot Applications VI, 1167107 (5 March 2021); https://doi.org/10.1117/12.2579030

(Invited) A. Blanco-Redondo, Topological nanophotonics: toward robust quantum circuits, SPIE Active Photonics Platforms XII, paper 114610Z, August 2020.

M.T. A. Khan, H. Li, N. N. M. Duong, A. Blanco-Redondo and S. Atakaramians," 3D printed Topologically Protected Terahertz Waveguides" Conference on Lasers and Electro-Optics/Pacific Rim, paper C10B_2, August 2020.

A. Runge, T.J. Alexander, J. Newton, P. Alavandi, D. D. Hudson, A. Blanco-Redondo and C. Martijn de Sterke, "Quartic self-similar propagation in an optical fiber," Conference on Lasers and Electro-Optics/Pacific Rim, paper P5_18, August 2020.

J. P. Lourdesamy, A. Runge, T. J. Alexander, D.D. Hudson, A. Blanco-Redondo and C. Martijn de Sterke, "Two-Color Soliton Molecules from a Fiber Laser," Conference on Lasers and Electro-Optics/Pacific Rim, paper C2B_2, August 2020.

(Invited) A. Runge, D. D. Hudson, C. Martijn de Sterke and A. Blanco-Redondo, "The pure-quartic soliton laser: leveraging high-order dispersion in mode-locked lasers," OSA Advanced Photonics Congress / Nonlinear Photonics Conference, paper NpTu3D. 1, July 2020.

(Invited) A. Blanco-Redondo, "Topological quantum photonics in silicon," IEEE Photonics North, May 2020.

(Invited) A. Blanco-Redondo, M. Wang, C. Doyle, B. Bell, M.J. Collins, E. Magi, B.J. Eggleton, M. Segev, "Topologically protected path-entangled photonic states" Conference on Lasers and Electro-Optics (CLEO), paper JM3A. 2, June 2020

(Invited) A. Runge, D. D. Hudson, C. Martijn de Sterke and A. Blanco-Redondo, "High-order dispersion solitons in mode-locked lasers," Conference on Lasers and Electro-Optics (CLEO), paper FTh1A. 1, June 2020

(Postdeadline) A. Runge, Y Log Qiang, T. J. Alexander, D. D. Hudson, A. Blanco-Redondo and C. Martijn de Sterke, "Generation of pure-sextic,-octic and-decic Kerr solitons," Conference on Lasers and Electro-Optics (CLEO), paper JTh4B.1, June 2020

A. Runge, D. D. Hudson, K. K. Tam, C. Martijn de Sterke, and A. Blanco-Redondo, "Pure-quartic solitons from a fibre laser with intracavity pulse-shaper," AOS Australian Conference on Optical Fibre Technology (ACOFT) and Australian Conference on Optics, Lasers, and Spectroscopy (ACOLS), Dec 2019.

(Invited) M. Wang, B. Bell, C. Doyle, M. J. Collins, B. J. Eggleton, M. Segev, and A. Blanco-Redondo, "Topologically robust entangled states in silicon," Optoelectronics and Communications Conference (OECC), Fukuoka, Japan, 7-11 July 2019.

(Invited) M. Wang, B. Bell, M. J. Collins, D. Oren, B. J. Eggleton, M. Segev, and A. Blanco-Redondo, "Topologically protected silicon quantum circuits," The Optical Fiber Communications (OFC) Conference (paper M1D.2), San Diego, US, 3-8 March 2019.

A. Blanco-Redondo, B. Bell, D. Oren, B.J. Eggleton, and M. Segev, "Entanglement between topological and trivial modes," Frontiers in Optics (paperJW4A.58), Washington DC, US, 16-20 Sep. 2018.

K. K. K Tam, T. J. Alexander, A. Blanco-Redondo, and C. Martijn de Sterke, "Solitary wave solutions in nonlinear media with quartic and quadratic dispersion - implications for high-power lasers," Frontiers in Optics (paperJW4A.78), Washington DC, US, 16-20 Sep. 2018.

E. Sahin, A Blanco-Redondo, P. Xing, D. K. T. Ng, C. E. Png, D. T. H. Tan, and B. J. Eggleton, "Bragg solitons in CMOS compatible platform." Conference on Lasers and Electro-Optics/Pacific Rim (paper Th5A.7), Hong Kong, China, 29-July - 3 August 2018.

(Invited) A. Blanco-Redondo, "Entangled states of topological modes in nanophotonics," 2018 IEEE Summer Topical Meeting Series (paper TuC3.3), Waikaloa, Hawaii, US, 9-11 Jul. 2018.

(Invited) A. Blanco-Redondo, "Novel nanophotonics circuits," SPIE Photonics Europe 2018 (paper 10684-8), Strasbourg, France, 22-26 Apr. 2018.

(**Invited**) A. Blanco-Redondo, "Topological quantum states and novel solitons in nanophotonics," SPIE Nanophotonics (paper 10456-55), Melbourne, Australia, 10-14 Dec. 2017.

(**Invited**) A. Blanco-Redondo, "New regimes with nanophotonics: exotic solitons and topological edge states," ANZCOP 2017, Queenstown, New Zealand, 3-7 Dec. 2017

(**Invited**) A. Blanco-Redondo, B. Bell, D. Oren, M. Segev, and B. Eggleton, "Photonic quantum walks with symmetry protected topological phases," Metanano 2017, Vladivostok, Russia, 18-22 Sep. 2017

(**Invited**) A. Blanco-Redondo, B. Bell, M. Segev, and B. Eggleton, "The effect of topology on quantum photonic states in silicon," AIP Conference Proceedings **1874**, 020001 (2017), presented at META'17, Seoul, South Korea, 25-29 July 2017

(**Invited**) C. Martijn de Sterke, G. H. Y. Li, C.-W Lo, A. Stefani, and A. Blanco-Redondo, "Propagation and scaling of pure-quartic solitons," Frontiers in Optics (paper FW5E.2), Washington,16-20 Sep. 2017

A. Blanco-Redondo, C.-W. Lo, A. Stefani, B. Eggleton, and C, Martijn de Sterke "Scaling properties of pure-quartic solitons," Nonlinear Optics (paper NTu1B. 6), Hawaii, USA, 20-25 Jun. 2017

A. Stefani, C.-W. Lo, C. Martijn de Sterke, and A. Blanco-Redondo, "Photonic crystal fibers as a platform for pure-quartic solitons," Nonlinear Optics (paper NTu3B.2), Hawaii, USA, 20-25 Jun. 2017

A. Blanco-Redondo, C. Martijn de Sterke, C. Husko, and B. Eggleton, "High-energy ultra-short pulses from pure-quartic solitons," CLEO Europe (paper EE-3.2), Munich, Germany, 25-29 Jun. 2017

(**Invited**) C. M. de Sterke, A. Blanco-Redondo, A. Sarai, C.-W. Lo, B. J. Eggleton, and M. J. Steel, "Shape and properties of pure quartic solitons," CLEO Pacific Rim, Singapore, 31 Jul.-4 Aug. 2017

(**Invited**) B. Bell*, A. Blanco-Redondo*, M. J. Collins, M. Rechtsman, M. Segev, and B. Eggleton, "Photon pair generation in silicon protected by topology," Nonlinear Photonics 2016 (paper NTh2A.1), Sydney, Australia, 5-8 September 2016.

(Invited) C. A. Husko, A. Blanco-Redondo, S. Lefrancois, B. J. Eggleton, T. F. Krauss, M. Wulf, L. K. Kuipers, , C.-W. Wong, P. Colman, S. Combrie, and A.De Rossi, "Solitary pulses in nanophotonic waveguides," Nonlinear Photonics 2016 (paper NTh2B.1), Sydney, Australia, 5-8 September 2016.

C. A. Husko, M. Wulf, L Kuipers, T. F Krauss, C.-W. Wong, P. Colman, S. Combrie, A.De Rossi, A. Blanco-Redondo, S. Lefrancois, and B. J. Eggleton, "Soliton dynamics in integrated photonic chips," Latin America Optics and Photonics Conference 2016 (paper LTu5D.1), Medellin Colombia, 2-26 August 2016.

I. Andonegui, A. Blanco-Redondo, M.J. Collins, G. Harari, Y. Lumer, M. C. Rechtsman, B. J. Eggleton, M. Segev, A. J. Garcia-Adeva, "Topological optical waveguiding in SOI structures," 2016 18th International Conference on Transparent Optical Networks (ICTON), Trento, Italy, 10-14 July 2016.

(**Post-deadline**) A. Blanco-Redondo, B. Bell, M. J. Collins, M. C. Rechtsman, M. Segev, B. J. Eggleton, "Topological protection of quantum states in silicon," CLEO: Science and Innovations (JTh4A.1), San José, USA, 5-10 Jun 2016.

A. Blanco-Redondo, I.Andonegui, M. Collins, Y. Lumer, Mikael C Rechtsman, Benjamin Eggleton, Mordechai Segev "Topological protection of quantum states in silicon," CLEO: QELS_Fundamental Science (paper FM3A.5), San José, USA, 5-10 Jun 2016.

(Invited) C. A. Husko, A. Blanco-Redondo, S. Lefrancois, B. J. Eggleton, T. F. Krauss, M. Wulf, L. K. Kuipers, C.-W. Wong, S. Combrie, A.De Rossi and P. Colman, "Soliton dynamics in semiconductor photonic crystals," SPIE Photonics Europe 2016, Brussels, Belgium, 4-7 April 2016.

A. Blanco-Redondo, I. Andonegui, M.J. Collins, G. Harari, Y. Lumer, M. C. Rechtsman, B.J. Eggleton, and M. Segev, "Observation of waveguiding by topological defects in a silicon photonic platform," Australian and New Zealand Conference on Optics and Photonics 2015 (ANZCOP 2015), Adelaide, Australia, 29 Nov. 3 Dec. 2015.

S. Lefrancois, C. Husko, A. Blanco-Redondo, B. J. Eggleton, "Nonlinear silicon photonics and the moment method," 2015 Conference on Lasers and Electro-Optics (CLEO), San José, USA, 10-15 May 2015.

(**Post-deadline**) A. Blanco-Redondo, T.F. Krauss, B. Eggleton, C. Husko, "Pure-quartic solitons", CLEO/Europe-EQEC (paper PD-B.6), Munich, Germany, 20-25 June 2015.

C. Husko, A. Blanco-Redondo, D. Eades, Y. Zhang, T. F. Krauss, B. J. Eggleton, "Interplay of nonlinear dynamics in silicon photonic crystal waveguides," 2014 Conference on Lasers and Electro-Optics (CLEO), San José, USA, 08-13 June 2014.

A. Blanco-Redondo, C. Husko, D. Eades, Y. Zhang, T. F. Krauss, B. J. Eggleton, "First observation of soliton compression in silicon photonic crystals," Australian and New Zealand Conference on Optics and Photonics 2013 (ANZCOP 2013), Freemantle, Australia, 8-11 Dec. 2015.

(Invited) I. Andonegui, A. Blanco-Redondo, I. Calvo, and A. J. Garcia-Adeva, "Inverse design of novel nanophotonic structures," 2013 15th International Conference on Transparent Optical Networks (ICTON), Cartagena, Spain, 23-27 Aug. 2013.

C. Husko, D. Eades, A. Blanco-Redondo, Y. Zhang, T. F. Krauss, B. J. Eggleton, "Phase-resolved soliton dynamics in silicon photonic crystals," 2013 Conference on Lasers and Electro-Optics (CLEO), San José, USA, 08-13 June 2013.

(Invited) A. Blanco-Redondo, I. Andonegui, J.A. Zubía, "Optical buffers based on photonic crystals," Proc. of The International Conference on Micro- and Nano-photonic materials and Devices (MINAP), Trento, Italy, 16-18 Jan. 2012.

(Invited) A. Blanco-Redondo, "Optical Buffers: an enabling technology for optical packet switching," The XXX URSI General Assembly & Scientific Symposium the International Union of Radio Science, Istanbul, Turkey, 13-20 Aug. 2011.

(Invited and Best Paper Award) A. Blanco-Redondo, E. Areizaga, J. Zubía, "Slow light for microwave photonics applications," Proc. of IEEE Mediterranean Microwave Symposium (MMS), Tangiers, Morocco, 15-17 Nov. 2009.

A. Blanco-Redondo, P. Beltrán, J.Zubía, "Enabling technologies for future all-optical packet switched networks," Proc. of IEEE Internat. Conf. on Ultra Modern Communications (ICUMT), Saint Petersburg, Russia, 12-14 Oct. 2009.

P. Beltrán, A. Blanco-Redondo, F. J. Cortés, A. Pozo, "All-optical transport layer and GPON access for inmmersive communications," Proc. of IEEE Internat. Conf. on Ultra Modern Communications (ICUMT), Saint Petersburg, Russia, 12-14 Oct. 2009.

(Best Paper Award) A. Blanco-Redondo, E. Areizaga, J. Zubia, "All-optical networks and switching technologies for a 3D videoconference system with the feeling of presence," Proc. of 13th International Telecommunications Network Strategy and Planning Symposium (NETWORKS), Budapest, Hungary, 28 Sep.–2 Oct. 2008.