PAOLO PINTUS

Address: Engineering Science Building, Room 3221G, University of California, Santa Barbara, CA 93106
E-mail: ppintus@ucsb.edu;

EDUCATION

2008 – 2012: **Ph.D. in Innovative technologies of Information, Communication Technologies & Robotics with honors**
Majors: Photonics, optoelectronics and computational electromagnetics
Scuola Superiore Sant'Anna, Pisa, Italy; Advisor: Fabrizio Di Pasquale
Dissertation: "Design of silicon based integrated optical devices using the finite element method"

2005 – 2007: **Master of Science in Electronics Engineering with honors**
University of Cagliari, Cagliari, Italy; Thesis Advisors: Cornelis van der Mee and Sebastiano Seatzu
M.Sc. Thesis: "Mathematical principles for the design of photonic crystals"

2002 – 2005: **Bachelor of Science in Electronics Engineering with honors**
University of Cagliari, Cagliari, Italy;

ACADEMIC APPOINTMENTS

Apr. 2016 – present **Project Scientist**, University of California Santa Barbara, CA, USA
Mar. 2015 – Sep. 2015 **Assistant Project Scientist**, University of California Santa Barbara, CA, USA
Feb. 2014 – Feb. 2016 **Independent contractor**, National Inter-University Consortium for Telecommunications, Pisa, Italy
Jan. 2011 – Apr. 2016 **Postdoc research fellow**, Scuola Superiore Sant'Anna, Pisa, Italy
Aug. 2010 – May 2011 **Research Assistant**, University of California Santa Barbara, CA, USA
Sep. 2007 – Jan. 2008 **Visiting Scholar (Leonardo da Vinci's Project)**, Imperial College of London, UK

RESEARCH EXPERTISE

Modeling, design and optimization of photonic integrated circuits in silicon photonics. Nonreciprocal optical devices. Optical switching. Nonlinear optics. Modelling of optical material properties. Computational electromagnetics.

HONORS and AWARDS

2015: **Excellent Technical Note** – TE Connectivity Conference (2015 TEchCon), Shanghai, China, October 12th-15th, 2015.
2014: **Biannual European Anile-ECMI Prize for Mathematics in Industry** - III Edition, by Angelo Marcello Anile Association and the European Consortium for Mathematics in Industry.
2013: **Biannual National Contest "Ingegner Giuseppe Pedriali"** - XXIII Edition, by the Provincia di Forlì-Cesena, Italy.
2012: **Biannual INDAM-SIMAI prize** for the best PhD thesis on applied mathematics - III Edition, by the Italian National Institute of High Mathematics and the Italian Society of Industrial and Applied Mathematics.
2011: **Finalist in the selection process for the 2011 ECCOMAS PhD Award**, by European Community on Computational Method in Applied Science.
2009: **Best Poster Paper Presentation Award** - The 4th International Conf. on Computers and Devices for Communication (CODEC-09), Institute of Radio Physics and Electronics, University of Calcutta, Kolkata, India, October 14th-16th, 2009.
2008: **Meucci-Marconi's prize** for the best national master thesis on telecommunication and electromagnetic field, by Fondazione Guglielmo Marconi, Fondazione Ugo Bordoni and Associazione per la Tecnologia dell'Informazione e della Comunicazione – AICT.
2008: **Master scholarship BEST 2008** (Bologna Experience for Superior Talents), by Alma Graduate School, Bologna, Italy.
2008: **PhD fellowship 2008-2011** at Scuola Superiore Sant'Anna, Pisa, Italy, by the Italian Ministry of Education.
2006: **Leonardo da Vinci's fellowship "Bio-informatics and Nano-Biotechnology (BIO-NANO)"**, by University of Cagliari and TUCEP Consortium of Perugia.
2006: **Excellence Award**, by the University of Studies of Cagliari, Italy.

SELECTED PUBLICATIONS (full publication list follows at page 3)

J1. **P. Pintus**, D. Huang, C. Zhang, Y. Shoji, T. Mizumoto, and J.E. Bowers, "Microring-based optical isolator and circulator with integrated electromagnet for silicon photonics," IEEE/OSA J. Lightwave Technol., vol. 35, pp.1429-1437, 2017 **(Highly-Scored, invited paper)**.
J2. C. L. Manganelli, **P. Pintus**, and C. Bonati, "Modeling of strain-induced Pockels effect in silicon," Opt. Express, vol. 23, pp. 28649-28666, 2015 (**Equal first authorship**).
J3. **P. Pintus**, "Accurate vectorial finite element mode solver for magneto-optic and anisotropic waveguides," Opt. Express, vol. 22, pp 15737-15756, 2014.
J4. **P. Pintus**, P. Contu, N. Andriolli, A. D'Errico, F. Di Pasquale, F. Testa, "Analysis and design of micro-ring based switching elements in a silicon photonic integrated transponder aggregator," IEEE/OSA J. Lightwave Technol., special Issue on Optical interconnects, vol. 31, pp. 3943-3955, 2013.
J5. M.-C. Tien, T. Mizumoto, **P. Pintus**, H. Kroemer, and J.E. Bowers, "Silicon ring isolators with bonded nonreciprocal magneto-optic garnets," Opt. Express, vol. 19, pp 11740-11745, 2011.

RESEARCH PROJECTS

Project scientist projects - University of California Santa Barbara, USA

MOABB: "Modular Optical Aperture Building Blocks" funded by DARPA agency.

- Modelling, design and characterization of integrated phase shifter made by III-V on silicon for LIDAR application.

AIM: "The American Institute for Manufacturing Integrated Photonics". U.S. grant.

- Developing of photonic design automation tool. Excellent agreement between theory and model was achieved.

Integrated Photonic Optical Circulator funded by the Air Force with Morton Photonics.

- Modelling, design and characterization of integrated optical isolator and circulators.
- Demonstration of large optical isolation (>32dB) and limited excess loss (<2.3dB) in microring-isolator.
- Broadband optical isolation (20dB of isolation over more than 18nm) in Mach-Zehnder based isolator/circulator.

Independent contractor - National Inter-University Consortium for Telecommunications, Pisa, Italy

IRIS: "Integrated Reconfigurable silicon photonic based optical Switch" funded by the European Commission.

- Co-wrote the proposal and led/coordinate the photonic circuit design
- Modeling, design and characterization of thermally tunable microring based switch elements in silicon photonics
- Device optimization for improving fabrication tolerance and reducing total power consumption (< 27 mW/FSR)
- Electro-optic integration with pulse width modulation driver for efficient fast reconfiguration

Postdoc projects - Scuola Superiore Sant'Anna, Pisa, Italy

MINOS: "MIcro- and NanO-structured photonic devices based on strained silicon for ultrafast Switching in datacom applications" funded by the Italian Ministry of Education, Universities and Research.

- Co-wrote the proposal and led the photonic circuit design
- First mathematical modelling of strain-induced electro-optic effect in center-symmetric crystal like silicon

NANO-RODIN: "Photonic nano-technologies for the production of integrated RODIN systems" Italy-Canada project co-founded by the Italian Ministry of Foreign Affairs;

- Co-wrote the proposal and led the photonic circuit design
- Modelling and design of microring resonator for optical network-on-chip.

ARNO-T3: "Architectures of Optical Networks and Nodes for high capacity transmission and access-metro-core transport based on integrated photonic technologies" funded by the Tuscany Region.

- Co-wrote the proposal and led the photonic circuit design
- Modelling and design of microring resonator for optical switching matrix in WDM telecom system.

Ph.D. projects - Scuola Superiore Sant'Anna in Pisa

- Development of accurate mode solver based on the finite element method for anisotropic waveguides & ring resonators
- Design and modelling of integrated optical isolators based on nonreciprocal phase shift
- Design of slot waveguide lasers (static and dynamic models) in erbium doped silica (Er^{3+}:SiO_2) and erbium doped aluminum oxide (Er^{3+}:Al_2O_3) for telecommunication and biomedical applications. Low threshold is theoretically demonstrated (> 5mW).

PATENTS

P1. U.S. provisional patent application no. 62/756220, "Heterogeneously integrated indium gallium nitride on silicon photonic integrated circuits," Inventors: T. Kamei, J. E. Bowers, T. Kamikawa, **P. Pintus**, S. P. DenBaars, and S. Nakamura, ownership University of California Santa Barbara, filing date: November 6th 2018 (**pending**).

P2. U.S. provisional patent application no. 62/648104, On-chip calibration and control of optical phased arrays," Inventors: T. Komlienovic and **P. Pintus**, ownership University of California Santa Barbara, filing date: March 26th 2018 (**pending**).

P3. U.S. provisional patent no. 62/290341, "Reconfigurable integrated-optics-based non-reciprocal devices", Inventors: J. E. Bowers, **P. Pintus**, D. Huang, ownership University of California Santa Barbara, filing date: Feb. 2nd 2016 (**granted**).

P4. Italian Patent RA2013A000001, "Dispositivo Ottico", Inventors: **P. Pintus**, F. Di Pasquale, and J.E. Bowers, ownership Scuola Superiore Sant'Anna and University of California Santa Barbara, filing date: Jan. 8th 2013 (**granted**).

P5. European Patent Application - P36731, "Optical routing apparatus and method". Inventors: F. Testa, **P. Pintus**, F. Di Pasquale, and A. D'Errico, ownership CNIT- Italian National Consortium for Telecommunications ERICSSON S.p.A., filing date: June 8th 2012 (**granted**).

TEACHING

Fall 2012 - 2016 Co-lecturer "Electromagnetic Fields and Propagation- Part 2," (Master and PhD), Scuola Superiore Sant' Anna, Pisa, Italy.

Spring 2013 - 2015 Co-lecturer "Photonic Integrated Circuits," (Master and PhD), Scuola Superiore Sant'Anna, Pisa, Italy.

STUDENT SUPERVISION & MENTORSHIP

PhD co-supervisor (3):

- Duanni (Tony) Huang, University of California Santa Barbara, USA (2016 – present)
- Zeyu (Robert) Zhang, University of California Santa Barbara, USA (2016 – present)
- Costanza L. Manganelli, Scuola Superiore Sant'Anna, Italy (2014 - 2017) (**Best Doctoral Thesis Award 2017 by IEEE Photonics Society Italian Chapter**)

Master Thesis supervisor (1):

- Cristian Zambiasi, University of Trento, Italy

Bachelor Thesis supervisor (1):

- Andre Merlo, University of Pisa, Italy

Undergraduate student mentoring (2):

- Do (Diane) Kim, AIM Photonics Future Leaders, Summer 2018
- Micaela Saunders, AIM Photonics Undergraduate Researcher, Summer 2016

SERVICE

Reviewer activity for international journals

- Nature Communications
- Nature Scientific Reports
- Laser & Photonics Reviews
- IEEE Journal of Selected Topics in Quantum Electronics
- IEEE/OSA Journal of Lightwave Technology
- IEEE Journal of Quantum Electronics
- IEEE Photonics Technology Letters
- IEEE Photonics Journal
- IEEE Transactions on Magnetics Conferences
- IEEE International Conference on Photonics 2013
- PIER Journal of Electro Magnetic Waves & Applications
- Optics Express
- Optics Letter
- Applied Optics
- Applied Physics Letter
- Optik - International Journal for Light and Electro Optic
- The European Physical Journal Plus

Administrative support

Tutorship activity - University of Cagliari, Cagliari, Italy - November 2006 - September 2007

CERTIFICATION AND QUALIFICATION AWARDED

National Scientific Qualification as Associate Professor - Experimental condensed matter physic, Electronics and Electromagnetic fields by Ministry of Education, Universities and Research, Italy, March 2018 – March 2024

Professional Qualification to practice as an Engineer, University of Cagliari, Italy, June-July 2008

OTHER JOURNAL PUBLICATIONS

J6. F. Testa, S. Tondini, F. Gambini, P. Velha, A. Bianchi, C. Kopp, M. Hofbauer, C. L. Manganelli, N. Zecevic, S. Faralli, G. Pares, R. Enne, A. Serrano, B. Goll, G. Fontana, A. Chalyan, J.-M. Lee, **P. Pintus**, G. Chiaretti, H. Zimmermann, L. Pavesi, C. J. Oton, and S. Stracca, "Integrated reconfigurable silicon photonics switch matrix in IRIS project: technological achievements and experimental results", IEEE/OSA J. Lightwave Technol., in press

J7. T. Komljenovic, D. Huang, **P. Pintus**, M.A. Tran, M.L. Davenport, and J.E. Bowers, "Photonic integrated circuits using heterogeneous integration on silicon," Proceedings of the IEEE, in press.

J8. C. L. Manganelli, P. Velha, **P. Pintus**, F. Gambini, O. Lemonnier, L. Adelmini, C. Kopp, S. Faralli, F. Di Pasquale, C. Wegner, and C. J. Oton, "Low-power consumption integrated tunable filters for WDM switching applications in silicon photonics," IEEE Photonic. Tech. L., vol. 30, pp. 1601-1604, 2018.

J9. D. Huang, **P. Pintus**, and J.E. Bowers, "Towards heterogeneous integration of optical isolators and circulators with lasers on silicon," Opt. Mater. Express, vol. 8, pp. 2471-2483, 2018 **(invited paper)**.

J10. N. Zečević N, M. Hofbauer, B. Goll, H. Zimmermann, S. Tondini, A. Chalyan, G. Fontana, L. Pavesi, F. Testa, S. Stracca, A. Bianchi, C. Manganelli, P. Velha, **P. Pintus**, C. Oton, C. Kopp, L. Adelmini, O. Lemmonier, G. Pares, G. Chiaretti, A. Serrano, J. A. Ayucar, C. B. Preve, M.S. Kim, and J. M. Lee, "A 3D photonic-electronic integrated transponder aggregator with 48 × 16 heater control cells," IEEE Photonic Technol. L., vol. 30, pp. 681-4, Apr 15, 2018.

J11. T. Komljenovic and **P. Pintus**, "On-chip calibration and control of optical phased arrays," Opt. Express, vol. 26, pp. 3199-3210, 2018.

J12. D. Huang, **P. Pintus**, Y. Shoji, P. Morton, T. Mizumoto, and J.E. Bowers, "Integrated broadband Ce:YIG/Si Mach Zehnder optical isolators with over 100 nm tuning range", Opt. Letters, vol. 42, 2017 (**Equal first authorship**).

J13. F. Gambini, **P. Pintus**, S. Faralli, M. Chiesa, G. B. Preve, I. Cerutti, and N. Andriolli, "Experimental demonstration of a 24-port packaged multi-microring network-on-chip in silicon photonic platform," Opt. Express vol. 25, pp. 22004-22016, 2017.

J14. C. L. Manganelli, **P. Pintus**, F. Gambini, D. Fowler, M. Fournier, S. Faralli, C. Kopp, and C. J. Oton "Large-FSR thermally tunable double-ring filters for WDM applications in silicon photonics," IEEE Photonics J., vol. 9, p. 6600310, 2017.

J15. D. Huang, **P. Pintus**, C. Zhang, P. Morton, Y. Shoji, T. Mizumoto, and J. E. Bowers, "Dynamically reconfigurable integrated optical circulators," Optica, vol. 4, pp. 23-30, 2017 **(Equal first authorship)**.

J16. D. Huang, **P. Pintus**, C. Zhang, Y. Shoji, T. Mizumoto, and J.E. Bowers, "Electrically driven and thermally tunable integrated optical isolators for silicon photonics," IEEE J. Sel. Top. Quantum Electron., vol. 22, p. 4403408, 2016 **(Equal first authorship)**.

J17. F. Testa, C. J. Oton, C. Kopp, J.-M. Lee, R. Ortuño, R. Enne, S. Tondini, G. Chiaretti, A. Bianchi, **P. Pintus**, M.-S. Kim, D. Fowler, J. Á. Ayúcar, M. Hofbauer, M. Mancinelli, M. Fournier, G. B. Preve, N. Zecevic, C. L. Manganelli, C. Castellan, G. Parès, O. Lemonnier, F. Gambini, P. Labeye, M. Romagnoli, L. Pavesi, H. Zimmermann, F. Di Pasquale, and S. Stracca, "Design and implementation of an integrated reconfigurable silicon photonics switch matrix in IRIS project," IEEE J. Sel. Top. Quantum Electron., vol. 22, pp. 155-168, 2016.

J18. S. Faralli, F. Gambini, **P. Pintus**, M. Scaffardi, O. Liboiron-Ladouceur, Y. Xiong, P. Castoldi, F. Di Pasquale, N. Andriolli, and I. Cerutti, "Bidirectional transmission in an optical network on chip with bus and ring topologies," IEEE Photonics J., vol. 8, p. 0600407, 2016.

J19. **P. Pintus**, F. Gambini, S. Faralli, F. Di Pasquale, I. Cerutti, and N. Andriolli, "Ring versus bus: theoretical and experimental comparison of photonic integrated NoC," IEEE/OSA J. Lightwave Technol., vol. 33, pp. 4870-4877, 2015.

J20. F. Gambini, S. Faralli, **P. Pintus**, N. Andriolli, and I. Cerutti, "BER evaluation of a low-crosstalk silicon integrated multi-microring network-on-chip," Opt. Express, vol. 23, pp. 17169-17178, 2015.

J21. **P. Pintus**, P. Contu, P. G. Raponi, I. Cerutti, and N. Andriolli, "Silicon-based all-optical multi microring (MMR) network-on-chip," Opt. Letters, vol. 39, pp. 797-800, 2014.

J22. **P. Pintus**, N. Andriolli, F. Di Pasquale, and J. E. Bowers, "Bidirectional crosstalk and back-reflection free WDM active optical interconnects," IEEE Photonic. Tech. L., vol.25, pp.1973-1976, 2013.

J23. S. M. Sher, **P. Pintus**, and F. Di Pasquale, "Numerical study of novel high-index-contrast Er:LiNbO3 photonic wire lasers optically pumped at 980nm," Appl. Optics, vol. 52, pp. 4438-4445, 2013.

J24. G. Kurczveil, **P. Pintus**, M.J.R. Heck, J.D. Peters, and J.E. Bowers, "Characterization of insertion loss and back reflection in passive hybrid silicon tapers," IEEE Photonics J., vol. 5, pp. 6600410, 2013.

J25. **P. Pintus**, F. Di Pasquale, and J. E. Bowers, "Integrated TE and TM optical circulators on ultra-low-loss silicon nitride platform," Opt. Express, vol. 21, pp.5041-5052, 2013.

J26. **P. Pintus**, F. Di Pasquale, and J. E. Bowers, "Design of transverse electric ring isolators for ultra-low loss Si3N4 waveguides based on the finite element method", Opt. Lett., vol. 36, pp. 4599-4601, 2011.

J27. **P. Pintus**, M.-C. Tien, and J. E. Bowers, "Design of magneto-optical ring isolator on SOI based on the finite element method", IEEE Photonic Tech. L., vol. 23, pp. 1670-1672, 2011.

J28. **P. Pintus** and M. Petrou, "Relational space classification for malaria diagnosis", Pattern Anal. Appl., vol. 14, pp. 261-272, 2011.

J29. **P. Pintus**, S. Faralli, and F. Di Pasquale, "Integrated 2.8μm laser source in Al2O3:Er3+ slot waveguide on SOI", IEEE/OSA J. Lightwave Technol., vol. 29, pp. 1206-1212, 2011.

J30. S. M. Sher, **P. Pintus**, F. Di Pasquale, M. Bianconi, G. B. Montanari, P. De Nicola, S. Sugliani and G. Prati, "Design of 980 nm-pumped waveguide laser for continuous wave operation in ion-implanted Er:LiNbO3", IEEE J. Quantum Elect., vol. 47, pp. 526-533, 2011.

J31. **P. Pintus**, S. Faralli, and F. Di Pasquale, "Low threshold pump power and high integration in Al2O3:Er3+ slot waveguide laser on SOI", IEEE Photonic Tech. L., vol. 22, pp. 1428-1430, 2010.

J32. C. van der Mee, P. Contu, and **P. Pintus**, "One-dimensional photonic crystal design", J. Quant. Spectrosc. Ra., vol. 111, pp. 214-225, 2010.

J33. C. van der Mee, **P. Pintus**, and S. Seatzu, "Mathematical principles in photonic crystals", Rivista Matematica dell'Università di Parma, vol. 7, pp. 99-137, 2008.

INVITED CONFERENCE TALKS

C-1. **P. Pintus**, D. Huang, P. A. Morton, Y. Shoji, T. Mizumoto, J. E. Bowers, "Integrated optical isolator and circulator in silicon photonics," 44th European Conference on Optical Communication (ECOC), We4C.5, Rome, Italy, Sept. 23rd-27th, 2018 (**speaker**).

C-2. D. Huang, **P. Pintus**, J. Peters, Y. Shoji, T. Mizumoto, and J. E. Bowers, "Heterogeneously integrated optical isolators and circulators for silicon photonics" PIERS - Progress in Electromagnetics Research Symposium, Toyama, Japan, August 1st – 4th, 2018.

C-3. **P. Pintus**, D. Huang, C. Zhang, Y. Shoji, T. Mizumoto, and J.E. Bowers, "Heterogeneous silicon optical isolators and circulators", in Advanced Photonics 2017, Integrated Photonics Research (IPR), Silicon, and Nano-Photonics, paper ITh2A.2, New Orleans, Louisiana, USA, July 24th - 27th, 2017 (**speaker**).

C-4. C. J. Oton, **P. Pintus**, C. L. Manganelli, F. Gambini, F. Di Pasquale, S. Tondini, C. Castellan, M. Mancinelli, L. Pavesi, M. S. Kim, J. M. Lee, D. Fowler, M. Fournier, C. Kopp, and F. Testa, "Silicon photonics for matrix switching applications: ingredients and recipes," in Advanced Photonics Conference 2016, Integrated Photonics Research (IPR), Silicon, and Nano-Photonics, paper ITu3B.6, Vancouver, British Columbia, Canada, July 18th - 20th, 2016.

C-5. D. Huang, **P. Pintus**, C. Zhang, Y. Shoji, T. Mizumoto, J.E. Bowers, "Reconfigurable integrated optical circulator," Conference on Lasers and Electro-Optics (CLEO) 2016, paper SM3E.1, San Jose, California, USA, June 5th-10th, 2016.

C-6. D. Huang, **P. Pintus**, S. Srinivasan and J.E. Bowers, "Increasing the sensitivity of optical current sensors," SPIE Photonic West 2016, San Francisco (USA), February 13th- 18th, 2016.

C-7. **P. Pintus**, D. Huang, S. Srinivasan, and J. E. Bowers, "Full vectorial mode solver for design and optimization of magneto-optic devices," International Conference on Electromagnetics in Advanced Applications (ICEAA) Conference, Torino, Italy, Sep. 7th -11th, 2015. (**speaker**)

C-8. **P. Pintus**, "Full-vectorial finite element mode solver for lossy and non-reciprocal ring resonators," The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid, Spain, July 7th - 11th, 2014. (**speaker**)

C-9. **P. Pintus**, "Design of silicon based integrated optical devices using the finite element method," The 18th European Conference on Mathematics for Industry, Taormina, Italy, June 9th -13th, 2014, (**key note speaker**)

C-10. J.E. Bowers, **P. Pintus**, M.J.R. Heck, and F. Di Pasquale, "Integrated optical circulators and isolators on an ultra-low-loss silicon nitride platform," IEEE Summer Topicals 2013, Hilton Waikoloa Village, Waikoloa, Hawaii, USA, 8th-10th July 2013 (**plenary**).

C-11. **P. Pintus**, "Design of silicon based integrated optical devices using the finite element method", Workshop SIMAI Giovani 2013, Italian Society for Industrial and Applied Mathematics, Roma, Italy, March 11th 2013 (**speaker**).

C-12. **P. Pintus**, "Full vectorial finite element method for integrated optical device design", SIMAI Biannual Congress 2012, Meeting of the Italian Society for Industrial and Applied Mathematics, Torino, Italy, June 25th -28th 2012 (**speaker**).

INVITED TALKS & SEMINARS

C-13. "Tunable device for NoC applications in silicon photonics," Massachusetts Institute of Technology, Boston, USA, July 11th, 2018.

C-14. "Materials for Nonreciprocal Photonics," webinar organized by the Materials Research Society, June 20th, 2018.

C-15. "The role of mathematical modelling and numerical simulation in the nanotechnologies," Within the program "New didactics for the School," organized by the "Accademia dei Lincei" Liceo Scientifico A. Pacinotti, Cagliari, February 29th, 2016.

C-16. "Silicon photonics: state of the art and future perspective," Electrical and Electronic Dep. (DIEE), University of Cagliari, Cagliari, Italy, January 9th, 2015.

C-17. "Couple mode theory based on FEM analysis" CEIICP, Scuola Superiore Sant'Anna, Pisa, Italy, May 6th, 2010.

C-18. "Finite element methods" CEIICP, Scuola Superiore Sant'Anna, Pisa, Italy, May 5th, 2010.

C-19. "Design of optically pumped Er3+ doped silicon-on-insulator slot waveguide for lasers and optical amplifier," LNM Institute of Information Technology, Jaipur, Rajasthan, December 19th, 2009.

C-20. "Eigenvalue problem for a longitudinal homogeneous waveguide," CEIICP, Scuola Superiore Sant'Anna, Pisa, Italy, May 22nd, 2009.

C-21. "Finite element methods," CEIICP, Scuola Superiore Sant'Anna, Pisa, Italy, May 21st, 2009.

C-22. "Electroencephalogram, signal analysis and pattern recognition," Microsoft Research in Redmond, Seattle, WA, USA Feb. 9th, 2007.

CONTRIBUTED CONFERENCE TALKS

C-23. L. Chang, A. Boes, P. Pintus, J. D. Peters, MJ. Kennedy, X. Guo, N. Volet, S. Yu, S. A. Diddams, S. B. Papp, J. E. Bowers, "High efficiency SHG in heterogeneous integrated GaAs ring resonators," The 31st Annual Conference of the IEEE Photonics Society (IPC), Reston, VA, USA, Sep. 30th – Oct. 4th, 2018 (**post-deadline**).

C-24. D. Huang, **P. Pintus**, J. Peters, P. A. Morton, Y. Shoji, T. Mizumoto, J. E. Bowers, "Widely tunable Ce:YIG on Si microring isolators for TE mode operation," The 15th International Conference on Group IV Photonics, Cancun, Mexico, August 29th - 31st, 2018.

C-25. A. Chalyan, S. Tondini, G. Fontana, L. Pavesi, N. Zecevic, M. Hofbauer, B. Goll, H. Zimmermann, F. Testa, S. Stracca, A. Bianchi, C. Manganelli, P. Velha, **P. Pintus**, C. Oton, C. Kopp, L. Adelmini, O. Lemonnier, G. Pares, G. Chiaretti, A. Serrano, J. Á. Ayucar, G. B. Preve, J. M. Lee, C. Castellan, "Automatic alignment of photonic components of massive optical switch to ITU channels", SPIE Photonics Europe 2018, Silicon Photonics: From Fundamental Research to Manufacturing, Strasbourg, France, May 23rd 2018.

C-26. S. Tondini, A. Chalyan, G. Fontana, L. Pavesi, N. Zečević, M. Hofbauer, H. Zimmermann, S. Stracca, A. Bianchi, C. Manganelli, P. Velha, **P. Pintus**, F. Di Pasquale, C. Oton, C. Kopp, G. Chiaretti, A. Serrano, J. Ayucar, G. B. Preve, J. Lee, F. Testa, "Integrated, scalable and reconfigurable silicon photonics based optical switch for colorless, directionless and contentionless operation," in Optical Fiber Communication Conference (OFC) 2018, paper Th1G.6, San Diego, California, USA, March 11th-15th, 2018.

C-27. **P. Pintus**, D. Huang, M. J. Kennedy, P. Morton, Y. Shoji, T. Mizumoto, J. E. Bowers, "Integrated widely tunable broadband optical isolator in silicon photonics", 43rd European Conference on Optical Communication (ECOC), W.1.C.3, Gothenburg, Sweden, Sept. 17th -21st, 2017 (**speaker**).

C-28. Y. Xiong, N. Andriolli, S. Faralli, F. Gambini, **P. Pintus**, M. Chiesa, R. Ortuño, O. Liboiron-Ladouceur, and I. Cerutti, "Demonstration of a packaged photonic integrated network on chip controlled by an FPGA-based scheduler," in Optical Fiber Communication Conference (OFC) 2017, paper W1A.3, Los Angeles, California, USA, March 19th -23rd, 2017.

C-29. D. Huang, **P. Pintus**, C. Zhang, Y. Shoji, T. Mizumoto, J. E. Bowers, "Multiple-port integrated optical circulators," IEEE Photonics Conf. (IPC) 2016, Waikoloa, HI, USA, October 2nd -6th, 2016.

C-30. S. Faralli, N. Andriolli, F. Gambini, **P. Pintus**, G. B. Preve, M. Chiesa, R. Ortuno, O. Liboiron-Ladouceur, I. Cerutti, "Bidirectional transmissions in a ring-based packaged optical NoC with 12 add-drop microrings", IEEE Photonics Conf. (IPC) 2016, Waikoloa, HI, USA, October 2nd -6th, 2016.

C-31. S. Faralli, I. Cerutti, F. Gambini, **P. Pintus**, G. B. Preve, M. Chiesa, R. Ortuno, N. Andriolli, "Characterization of a packaged network on chip based on multi-microrings", 42nd European Conference on Optical Communication (ECOC), pp. 1145-1147, Düsseldorf, Germany, September 19th -23rd, 2016.

C-32. **P. Pintus**, D. Huang, C. Zhang, Y. Shoji, T. Mizumoto, J. E. Bowers, "Novel nonreciprocal devices with integrated electromagnet for silicon photonics", 42nd European Conference on Optical Communication (ECOC), pp. 704-706, Düsseldorf, Germany, Sept. 19th -23rd, 2016 (**speaker**).

C-33. **P. Pintus**, C. L. Manganelli, F. Gambini, F. Di Pasquale, M. Fournier, O. Lemonnier, C. Kopp, C. J. Oton, "Optimization of integrated silicon doped heaters for optical microring resonators", 42nd European Conference on Optical Communication (ECOC), pp. 698-700, Düsseldorf, Germany, Sept. 19th -23rd, 2016 (**speaker**).

C-34. C. L. Manganelli, **P. Pintus**, F. Gambini, F. Di Pasquale, C. J. Oton and C. Kopp, "Thermal tuning double ring resonator filters: Experimental analysis," The 13th International Conference on Group IV Photonics, Shanghai, China, August 24th -26th, 2016.

C-35. **P. Pintus**, C. Manganelli, F. Gambini, F. Di Pasquale, C.J. Oton, S. Tondini, M. Mancinelli, C. Castellan, L. Pavesi, F. Testa, "Silicon photonic toolkit for integrated switching matrices," Fotonica 2016, 18th National Meeting on Photonic Technologies, Rome, Italy, June 6th -8th, 2016.

C-36. C. L. Manganelli, **P. Pintus**, F. Gambini, D. Fowler, M. Fournier, C. Kopp, F. Di Pasquale and C. J. Oton, "Design of coupled micro-ring resonators for silicon photonic switching matrices," pp. 84-85, IEEE Optical Interconnects Conference (OI) 2016, San Diego, CA, May 9th -11th, 2016

C-37. D. Huang, **P. Pintus**, C. Zhang, Y. Shoji, T. Mizumoto, J.E. Bowers, "Silicon microring isolator with large optical isolation and low loss," Optical Fiber Communication Conference (OFC) 2016, paper Th1K.2, Anaheim, California, USA, March 20th-24th, 2016.

C-38. C. L. Manganelli, **P. Pintus**, C. Bonati, and F. Di Pasquale, "Analysis of stress-induced Pockels Effect in silicon waveguides", COMSOL Conference 2015 Grenoble, Oct. 14th -16th, 2015.

C-39. E. Golovchenko, D. Huang, P. Pintus, S. Srinivasan, J. Hulme, J. Bowers, "Highly compact optical current sensors with high sensitivity and wide dynamic range"– TE Connectivity Conference (2015 TEchCon), Shanghai, China, October 12th-15th, 2015 (**Excellent Technical Note**).

C-40. S. Faralli, F. Gambini, **P. Pintus**, O. Liboiron-Ladouceur, P. Castoldi, N. Andriolli, and I. Cerutti, "Experimental demonstration of bidirectional transmissions in a photonic integrated network on chip with bus topology," Photonics in Switching Conference 2015, Florence, Italy, September 22nd -25th, 2015.

C-41. I. Cerutti, N. Andriolli, **P. Pintus**, S. Faralli, F. Gambini, P. Castoldi, and O. Liboiron-Ladouceur, "Fast scheduling based on iterative parallel wavelength matching for a multi-wavelength ring network-on-chip," 19th Optical Networks Design and Modelling (ONDM) Conference, paper We8.3O, Pisa, Italy, May 11th -14th, 2015.

C-42. S. Faralli, F. Gambini, **P. Pintus**, I. Cerutti and N. Andriolli, "Ring versus bus: a BER comparison of photonic integrated networks-on-chip," Optical Interconnect Conference, paper MC6, San Diego, California, USA, April 20th -22nd, 2015.

C-43. F. Gambini, **P. Pintus**, S. Faralli, N. Andriolli, I. Cerutti, "Demonstration of a photonic integrated network-on-chip with multi microrings," Optical Fiber Communication Conference 2015, paper W3D.6, Los Angeles, California, USA, March 22nd-26th, 2015.

C-44. C. Manganelli, **P. Pintus**, M. B. Casu, N. Andriolli and F. Di Pasquale, "Modeling of $\chi^{(2)}$ in strained silicon based on crystal symmetry," The 11th International Conference on Group IV Photonics, Paris, France, August 27th -29th, 2014.

C-45. N. Andriolli, I. Cerutti, **P. Pintus**, M. Scaffardi, D. Marini, G. B. Montanari, F. Mancarella, M. Ferri, R. Balboni, G. Bolognini, "Challenges and progress toward a silicon-based multi-microring optical network-on-chip," European Conference on Networks and Communications (EuCNC) 2014, Bologna, Italy, June 23rd -26th 2014.

C-46. **P. Pintus**, F. Gambini, V. Sorianello, P. Velha, M. Romagnoli, and F. Di Pasquale, "Design and optimization of integrated thermal heater for large switching fabric based on micro-ring resonators," Fotonica 2014, 16th National Meeting on Photonic Technologies, Napoli, Italy, May 12th -14th, 2014.

C-47. **P. Pintus**, "Modal analysis in nonreciprocal waveguide based on the finite element method," Nonlinear Evolution Equations and Linear Algebra, Cagliari, Italy, Sept. 2nd -5th, 2013 (**speaker**).

C-48. **P. Pintus**, N. Andriolli, F. Di Pasquale, and J.E. Bowers, "Crosstalk and back-reflection free active interconnects for intra-card WDM bi-directional communication," Fotonica 2013, 15th National Meeting on Photonic Technologies, Milan, Italy, May 21st-23rd, 2013 (**speaker**).

C-49. P. Contu, **P. Pintus**, F. Testa, A. D'Errico, and F. Di Pasquale, "Analysis and design of micro-ring based switch elements in silicon photonics for optical interconnection", IEEE Optical Interconnects Conference, Santa Fe, New Mexico, USA, May 5th-8th 2013 (**speaker**).

C-50. **P. Pintus**, N. Andriolli, F. Di Pasquale, and J.E. Bowers, "Integrated bidirectional optical amplifier for crosstalk-free WDM communication", IEEE Optical Interconnects Conference, Santa Fe, New Mexico, USA, May 5th-8th 2013 (**speaker**).

C-51. **P. Pintus**, P. Contu, N. Andriolli, I. Cerutti, and P. Raponi, "Modeling a multi microring (MMR) network-on-chip", IEEE Optical Interconnects Conference, Santa Fe, New Mexico, USA, May 5th-8th 2013 (**speaker**).

C-52. **P. Pintus**, N. Andriolli, F. Di Pasquale, M. C. Tien, H. Kroemer, J. E. Bowers, T. Mizumoto, "Progettazione e fabbricazione di un isolatore integrato per il modo TM realizzato mediante bonding di micro-ring in Silicio e strato di materiale magneto-ottico", Fotonica 2012, 14th National Meeting on Photonic Technologies, Firenze, Italy, May15th -17th 2012 (**speaker**).

C-53. **P. Pintus** and F. Di Pasquale, "Modelling of ring resonators with magneto-optic materials using the finite element method," Scientific Computing 2011 (SC2011), S. Margherita di Pula, Cagliari, Italy, October 10th -14th, 2011 (**speaker**).

C-54. **P. Pintus**, M. J. R. Heck, G. Kurczveil, J. E. Bowers, "Low-loss hybrid silicon tapers", IEEE International Conference on Group IV Photonics, The 8th International Conference on Group IV Photonics, Royal Society, London, England, Sept. 14th-16th 2011 (**speaker**).

C-55. **P. Pintus**, S.M. Sher, S. Faralli, V. Toccafondo, F. Di Pasquale, A. D'Errico, and F. Testa, "Progetto in tecnologia silicon on insulator di un laser in guida d'onda di tipo slot drogata con Ioni Er3+ e pompata otticamente", Fotonica 2010, 12th National Meeting on Photonic Technologies, Pisa, Italy, May 25th-27th 2010 (**speaker**).

C-56. R. Agarwal, R. Gangopadhyay, G. Prati, S. Gupta, and **P. Pintus**, "Optimally apodized ring-resonator filter for DPSK demodulation", The 4th International Conference on Computers and Devices for Communication (CODEC-09), Institute of Radio Physics and Electronics, University of Calcutta, Kolkata, India, Dec. 14th -16th 2009 (**Best Poster Award**).

C-57. **P. Pintus**, S. Faralli, V. Toccafondo, F. Di Pasquale, A. D'Errico, and F. Testa, "Design of optically pumped Er3+ doped silicon-on-insulator slot waveguide lasers", The 22nd annual meeting of the IEEE Photonics Society, LEOS 2009, Belek-Antalya, Turkey, Oct. 4th-8th 2009 (**speaker**).

C-58. C. van der Mee, **P. Pintus**, and S. Seatzu, "Mathematical principles for the design of photonic crystals", Integral Equations: recent developments and new applications, Parma, Italy, September 27th-28th, 2007 (**speaker**).

LANGUAGES

ITALIAN	mother tongue
ENGLISH	proficiency
FRENCH	elementary
GERMAN	elementary