

Curriculum Vitae

Personal information

First and last name: Daniel BENEDIKOVIC

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Date of birth: November 20, 1986 Nationality: Slovak

Education

06/2021	Scientific Qualification Degree IIa, Slovak Academy of Science, Slovakia
04/2015	PhD., Faculty of Electrical Engineering, University of Zilina, Slovakia
06/2011	MSc., Faculty of Electrical Engineering, University of Zilina, Slovakia
06/2009	BSc., Faculty of Electrical Engineering, University of Zilina, Slovakia

Current & previous positions

07/2022 – to date	Associate Professor, Faculty of Electrical Engineering and Information Technology, University of Zilina, Slovakia
04/2023 – to date	Adjunct Research Professor, Dept. Electronics, Carleton University, Canada
04/2021 – 06/2023	R&D coordinator, University Science Park, University of Zilina, Slovakia
12/2021 – 12/2022	Visiting Research Professor, Dept. Electronics, Carleton University, Canada
10/2020 – 06/2022	Senior Researcher, Faculty of Electrical Engineering and Information Technology, University of Zilina, Slovakia
11/2015 – 09/2022	Post-doc Researcher, Centre de Nanosciences et de Nanotechnologies, CNRS, Universite Paris-Saclay, France
10/2015 – 05/2015	Junior Researcher, Faculty of Electrical Engineering, University of Zilina, Slovakia
09/2011 – 04/2015	Research and Teaching Assistant, Faculty of Electrical Engineering, University of Zilina, Slovakia
09/2012 – 12/2012	Telecommunication Engineer, Towercom, a.s., Slovakia

Awards

12/2022	Rector award for the best internal research grant, University of Zilina, Slovakia
11/2022	Outstanding Reviewer award for the high-quality reviews for the IEEE journals
12/2021	Rector award for the best publication activity, University of Zilina, Slovakia
03/2016	PROGRESS 3 award for the best doctoral thesis in 2015 within Information Technology category in Slovak Republic, Czech Republic, and Poland
02/2015	Award for the best student contribution in the Scientific student competition, University of Zilina, Slovak Republic
09/2014	Rector award for the best publication activity, University of Zilina, Slovakia
04/2024	Editor-in-chief of Nature Photonics award for the best student presentation on IEEE International Conference on Group IV Photonics 2014, Paris, France
09/2012	Czech-Slovak Photonics Society award for the best student presentation on SPIE Czech-Polish-Slovak Optical Conference 2012, Ostravice, Czech Republic

Scholarships

01/2010 – 07/2010	Aalto University School of Science and Technology, Espoo, Finland funded by Erasmus (educational internship)
01/2013 – 03/2013	University of Malaga, Malaga, Spain funded by SPP “Hlavicka” programme (research internship)
03/2013 – 09/2012	National Research Council Canada, Ottawa, Canada founded by national Scholarship Programme of Slovak Republic (research internship)
02/2014 – 03/2014	Abdus Salam International Centre for Theoretical Physics, Trieste, Italy funded by UNESCO & United Nations (educational internship)
03/2014 – 04/2014	VTT Technical and Research Centre of Finland, Espoo, Finland funded by EURODOTS programme (educational internship)

Student and post-docs supervision

2011 – to date	Postdocs: 0; PhD.: 2 (on-going), MSc.: 16, Faculty of Electrical Engineering and Information Technology, University of Zilina, Slovakia, Dept. Electronics, Carleton University, Canada
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Teaching activities

2011 - 2015	Assistant, Subjects: Fiber optics, Digital communications, Photonics communication systems, University of Zilina, Slovakia (BSc. and MSc. programmes)
2020 – to date	Assistant-Lecturer-Guarantor, Subjects: Optical communications, Physics of optical communications, Integrated optoelectronics, University of Zilina, Slovakia (BSc., MSc., & PhD. programmes)

Organisation of scientific meetings

2022	General conference chair, Photonic West 2022, San Francisco, USA
2023	Topic committee member, Si Photonics conference 2023, Arlington, USA
2023	Program committee member, Optics and Optoelectronics, Prague, Czechia
2023	Program committee member, Photonic West 2023, San Francisco, USA
2024	Program committee member, Photonic West 2024, San Francisco, USA
2025	Program committee member, Photonic West 2025, San Francisco, USA
2025	Program committee member, Optics and Optoelectronics, Prague, Czechia

Institutional responsibilities

10/2024 – to date	Vice-dean for Science, Research, and International Relations, Faculty of Electrical Engineering and Information Technology, University of Zilina, Slovakia
10/2020 – to date	Guarantor of the PhD., MSc., and BSc. programmes, Faculty of Electrical Engineering and Information Technology, University of Zilina, Slovakia
05/2023 – 09/2024	Faculty Senate member, Faculty of Electrical Engineering and Information Technology, University of Zilina, Slovakia

Reviewing activities

2014 – to date	Reviewer for multiple scientific journals (over 320 reviews)
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Memberships in scientific societies

2015 – to date	SPIE, the international society for optics and photonics, USA
2014 – to date	Optica (formerly Optical Society of America), USA
2021 – to date	European Optical Society, Finland
2022 - to date	IEEE Photonics Society, USA
2020 – to date	Czech and Slovak Photonic Society, Czech republic

Projects

Project name	Founding scheme	Position
Study of alternative solutions to mitigate polarization mode dispersion in high-speed optical networks (2010-2011)	Science Grant Agency of Slovak Republic; VEGA 1/0411/10	Researcher
Fully-Converged Quintuple-Play Integrated Optical-Wireless Access Architectures (2010 - 2012)	FP7-ICT - Specific Programme "Cooperation": Information and communication technologies; Grant ID: 249142	Researcher
Mitigation of stochastic effects in high-bit rate all-optical networks (2013 - 2016)	Slovak Research and Development Agency; APVV-0025-12	Researcher
Low power consumption silicon optoelectronics based on strain and refractive index engineering (2015 - 2020)	European Research Council; Horizon 2020; Grant No. 647342	Researcher
Chip-scale integrated photonics for the miinfrared (2015 - 2020)	European Research Council; Horizon 2020; Grant No. 639107	Researcher
On-chip optical interconnect for all to all (2018 - 2022)	National Research Agency of France; ANR-18-CE24-0027	Researcher
Co-existence of photonics sensor systems and networks in the framework of internet of thing (2018 - 2021)	Slovak Research and Development Agency; APVV-17-0631	Researcher
DOLORES.AI: Pandemic protection system (2020 - 2021)	Slovak Research and Development Agency; PP-COVI20-0100	Researcher
Robust surface grating couplers with high directionality between conventional optical fibers and optoelectronic integrated chips (2021 - 2022)	Grant System of University of Zilina No. 1/2021 (13842)	Principal investigator
Hybrid photonisensoric systems for big data communications (2022 - 2024)	Scientific Grant Agency of the Ministry of Education, science, research and sport of the Slovak Republic and the	Principal investigator

Slovak Academy of Sciences; VEGA
1/0113/22

Nano-structured silicon photonics for energy-aware data communication interconnects on a chip (2022 - 2025)	Slovak Research and Development Agency; APVV-21-0217	Principal investigator
Surface grating couplers based on silicon nitride	Grant System of University of Zilina No. 1/2022 (17335)	Researcher
Devices and components for hybrid integrated photonics: creation of research-educational tutorials	Grant System of University of Zilina No. 2/2022 (17609)	Researcher
Broadband waveguides and interconnects on silicon nitride platform for quantum integrated circuits	Grant System of University of Zilina No. 2/2023 (18979)	Researcher
Harnessing metaheuristic optimization methods to designing photonic integrated devices	Grant System of University of Zilina No. 2/2024 (20564)	Researcher
Photonic integrated photonics for power and spectral management on a chip	Grant System of University of Zilina No. 2/2024 (20567)	Researcher
Multiband photonic integrated library for quantum-optical systems	EU NextGenerationEU through the Recovery and Resilience Plan for Slovakia; 09I03-03-V04-00410	Principal investigator
Multi-purpose photonic integration platform for digital networking backbones enabled by fiber-optics and chip-level interconnects	EU NextGenerationEU through the Recovery and Resilience Plan for Slovakia; 09I05-03-V02-00062	Principal investigator

Scientific and industry collaborations

- (1) National Research Council Canada, Ottawa, Canada
- (2) Dept. Electronics, Carleton University, Ottawa, Canada
- (3) Centre de Nanosciences et de Nanotechnologies, CNRS, Universite Paris-Saclay, France
- (4) CEA LETI, Grenoble, France
- (5) STMicroelectronics, Crolles, France
- (6) Optoelectronic Research Centre, University of Southampton, Southampton, United Kingdom
- (7) University of Malaga, Malaga, Spain
- (8) Optiwave, Inc., Ottawa, Canada
- (9) VSB - Technical Univeristy of Ostrava, Ostrava, Czech republic
- (10) ProFiber Networking, s.r.o, Trnava, Slovakia

Journal papers

- [036] William Fraser, Daniel Benedikovic, Radovan Korček, Mazyar Milanizadeh, Dan-Xia Xu, Jens H. Schmid, Pavel Cheben, and Winnie N Ye, "*High-efficiency self-focusing metamaterial grating couplers for silicon nitride using amorphous silicon overlayers*," Scientific Reports, Volume 14, pp. 11651, May 2024
- [035] Gabriel Cibira, Ivan Glesk, Jozef Dubovan, and Daniel Benedikovič, "Impact of Reducing Statistically Small Population Sampling on Threshold Detection in FBG Optical Sensing," Sensors, Volume 24, Issue 7, pp. 2285, April 2024
- [034] William Fraser, Radovan Korček, Ivan Glesk, Jan Litvik, Jens H. Schmid, Pavel Cheben, Winnie N. Ye, and Daniel Benedikovic, "*High-Efficiency Metamaterial-Engineered Grating Couplers for Silicon Nitride Photonics*," Nanomaterials, Volume 14, Issue 17, pp. 581, March 2024
- [033] Radovan Korček, David Medina Quiroz, Quentin Wilmart, Samson Edmond, Pavel Cheben, Laurent Vivien, Carlos Alonso-Ramos, and Daniel Benedikovic, "*Library of single-etch silicon nitride grating couplers for low-loss and fabrication-robust fiber-chip interconnection*," Scientific Reports, Volume 13, Issue 11, pp. 17467, October 2023
- [032] Radovan Korček, Pavel Cheben, William Fraser, Jens. H. Schmid, Mazyar Milanizadeh, Carlos Alonso-Ramos, Winnie N. Ye, and Daniel Benedikovič, "*Low-loss grating coupler based on inter-layer mode interference in a hybrid silicon nitride platform*," Optics Letters, Volume 48, Issue 15, pp. 4017-4020, August 2023

- [031] Patrik Kamencay, Miroslav Markovic, Jozef Dubovan, Milan Dado, and Daniel Benedikovic, "Neural-network-optimized vehicle classification using clustered image and fiber-sensor datasets," *IEEE Access*, Volume 11, pp. 41315-41324, February 2023
- [030] Thi Thuy Doung Dinh, Xavier Le Roux, Jinhao Zhang, Miguel Montesinos-Ballester, Christian Lafforgue, Daniel Benedikovic, Pavel Cheben, Eric Cassan, Delphine Marris-Morini, Laurent Vivien, and Carlos Alonso-Ramos, "Controlling the Modal Confinement in Silicon Nanophotonic Waveguides through Dual-Metamaterial Engineering," *Laser & Photonics Reviews*, Volume 17, Issue 3, pp. 2100305, March 2023
- [029] Daniel Benedikovič, Qiankun Liu, Alejandro Sánchez-Postigo, Ahmad Atieh, Tom Smy, Pavel Cheben, and Winnie N. Ye, "Circular Optical Phased Array with Large Steering Range and High Resolution," *Sensors*, Volume 22, Issue 16, pp. 6135, August 2022
- [028] Qiankun Liu, Daniel Benedikovic, Tom Smy, Ahmad Atieh, Pavel Cheben, and Winnie N. Ye, "Circular Optical Phased Arrays with Radial Nano-Antennas," *Nanomaterials*, Volume 12, Issue 11, pp. 1938, June 2022
- [027] Daniel Benedikovic, Léopold Viot, Guy Aubin, Jean-Michel Hartmann, Farah Amar, Xavier Le Roux, Carlos Alonso-Ramos, Éric Cassan, Delphine Marris-Morini, Frédéric Boeuf, Jean-Marc Fédéli, Bertrand Szelag, and Laurent Vivien, "Silicon-Germanium Avalanche Receivers with fJ/bit Energy Consumption," *IEEE Journal of Selected Topics in Quantum Electronics*, Volume 28, Issue 2, pp. 3802508, March-April 2022
- [026] Daniel Benedikovic, Leopold Viot, Guy Aubin, Jean-Michel Hartmann, Farah Amar, Xavier Le Roux, Carlos Alonso-Ramos, Eric Cassan, Delphine Marris-Morini, Frederic Boeuf, Bertrand Szelag, and Laurent Vivien, "Silicon-Germanium Receivers for Short-Wave-Infrared Optoelectronics and Communications," *De Gruyter Nanophotonics*, Volume 10, Issue 3, pp. 1059 – 1079, (INVITED REVIEW), February 2021
- [025] Jozef Dubovan, Jan Litvik, Daniel Benedikovic, Jarmila Mullerova, Ivan Glesk, Andrej Veselovsky, and Milan Dado, "Impact of wind gust on high-speed characteristics of polarization mode dispersion in optical power ground wire cables," *Sensors*, Volume 20, Issue 24, pp. 7110 (1 – 17), December 2020
- [024] Daniel Benedikovic, Leopold Viot, Guy Aubin, Jean-Michel Hartmann, Farah Amar, Xavier Le Roux, Carlos Alonso-Ramos, Eric Cassan, Delphine Marris-Morini, Paul Crozat, Frederic Boeuf, Jean-Marc Fedeli, Christophe Kopp, Bertrand Szelag, and Laurent Vivien, "40 Gbps heterostructure germanium avalanche photo receiver on a silicon chip," *Optica*, Volume 7, Issue 7, pp. 775 – 783, July 2020
- [023] Daniel Benedikovic, Leopold Viot, Guy Aubin, Jean-Michel Hartmann, Farah Amar, Bertrand Szelag, Xavier Le Roux, Carlos Alonso-Ramos, Paul Crozat, Eric Cassan, Delphine Marris-Morini, Charles Baudot, Frederic Boeuf, Jean-Marc Fédéli, Christophe Kopp, and Laurent Vivien, "Comprehensive Study on Chip-Integrated Germanium Pin Photodetectors for Energy-Efficient Silicon Interconnects," *IEEE Journal of Quantum Electronics*, Volume 56, Issue 1, Article Sequence Number: 8400409, February 2020
- [022] Elena Duran-Valdeiglesias, Sylvain Guerber, Dorian Oser, Xavier Le Roux, Daniel Benedikovic, Diego Perez-Galacho, Nathalie Vulliet, Sebastien Cremer, Stephane Monfray, Eric Cassan, Delphine Marris-Morini, Charles Baudot, Frederic Boeuf, Laurent Vivien, and Carlos Alonso-Ramos, "Dual-polarization silicon nitride Bragg filters with low thermal sensitivity," *Optics Letters*, Volume 44, Issue 18, pp. 4578 – 4581, September 2019
- [021] Daniel Benedikovic, Carlos Alonso-Ramos, Sylvain Guerber, Xavier Le Roux, Pavel Cheben, Cécilia Dupré, Bertrand Szelag, Daivid Fowler, Éric Cassan, Delphine Marris-Morini, Charles Baudot, Frédéric Boeuf, and Laurent Vivien, "Sub-decibel silicon grating couplers based on L-shaped waveguides and engineered subwavelength metamaterials," *Optics Express*, Volume 27, Issue 18, pp. 26239 – 26250, August 2019
- [020] Tiantian Li, Milos Nedeljkovic, Nannicha Hattasan Wei Cao, Zhibo Qu, Callum G. Littlejohns, Jordi Soler Penades, Lorenzo Mastronardi, Vinita Mital, Daniel Benedikovic, David J. Thomson, Frederic Y. Gardes, Hequan Wu, Zhiping Zhou, and Goran Z. Mashanovich, "Ge-on-Si modulators operating at midinfrared wavelengths up to 8 μm ," *Photonics Research*, Volume 7, Issue 8, pp. 828 – 836, August 2019
- [019] Carlos Alonso-Ramos, Xavier Le Roux, Jianhao Zhang, Daniel Benedikovic, Vladyslav Vakarin, Elena Durán-Valdeiglesias, Dorian Oser, Diego Pérez-Galacho, Florent Mazeas, Laurent Labonté, Sebastien Tanzilli, Eric Cassan, Delphine Marris-Morini, Pavel Cheben, and Laurent Vivien, "Diffraction-less propagation beyond the sub-wavelength regime: a new type of nanophotonic waveguide," *Nature Scientific Reports*, Volume 9, Article number: 5347, pp. 1 – 8, March 2019
- [018] Daniel Benedikovic, Léopold Viot, Guy Aubin, Farah Amar, Bertrand Szelag, Bayram Karakus, Jean-Michel Hartmann, Carlos Alonso-Ramos, Xavier Le Roux, Paul Crozat, Eric Cassan, Delphine Marris-Morini, Charles Baudot, Frédéric Boeuf, Jean-Marc Fédéli, Christophe Kopp, and Laurent Vivien, "25 Gbps low-voltage hetero-structured silicon-

- germanium waveguide pin photodetectors for monolithic on-chip nanophotonic architectures*,” Photonics Research, Volume 7, Issue 4, pp. 437 – 444, April 2019
- [017] Qiankun Liu, Joan Manel Ramirez, Vladyslav Vakarin, Xavier Le Roux, Jacopo Frigerio, Andrea Ballabio, Enrico Talamas Simola, Carlos Alonso-Ramos, Daniel Benedikovic, David Bouville, Laurent Vivien, Giovanni Isella, and Delphine Marris-Morini, “*On-Chip Bragg grating waveguides and Fabry-Perot resonators for long-wave operation up to 8.4 μm* ,” Optics Express, Volume 26, Issue 26, pp. 34366 – 34371, December 2018
- [016] Delphine Marris-Morini, Vladyslav Vakarin, Joan Manel Ramirez, Qiankun Liu, Andrea Ballabio, Jacopo Frigerio, Miguel Montesinos, Carlos Alonso-Ramos, Xavier Le Roux, Samuel Serna, Daniel Benedikovic, Daniel Chrastina, Laurent Vivien, and Giovanni Isella, “*Germanium-based integrated photonics from near- to midinfrared applications*,” De Gruyter Nanophotonics, Volume 7, Issue 11, pp. 1781 – 1793, (INVITED REVIEW), November 2018
- [015] Mathias Berciano, Guillaume Marcaud, Pedro Damas, Xavier Le Roux, Paul Crozat, Carlos Alonso-Ramos, Diego Perez-Galacho, Daniel Benedikovic, Delphine Marris-Morini, Eric Cassan, and Laurent Vivien, “*Fast linear electro-optic effect in centrosymmetric semiconductor*,” Nature Communications Physics, Volume 1, Article number: 64, pp. 1 – 9, October 2018
- [014] Sylvain Guerber, Carlos Alonso-Ramos, Daniel Benedikovic, Elena Durán-Valdeiglesias, Xavier Le Roux, Nathalie Vulliet, Eric Cassan, Delphine Marris-Morini, Charles Baudot, Frédéric Boeuf, and Laurent Vivien, “*Broadband polarization beam splitter on a silicon nitride platform for O-band operation*,” IEEE Photonics Technology Letters, Volume 30, Issue 19, pp. 1679 – 1682, October 2018
- [013] Robert Halir, Alejandro Ortega-Moñux, Daniel Benedikovic, Goran Z. Mashanovich, Juan-Gonzalo Wangüemert-Pérez, Iñigo Molina-Fernández, and Pavel Cheben, “*Subwavelength-grating metamaterial structures for silicon photonic devices*,” Proceedings of IEEE, Volume 106, Issue 12, pp. 2144 – 2157, (INVITED REVIEW), December 2018
- [012] Guillaume Marcaud, Sylvia Matzen, Carlos Alonso-Ramos, Xavier Le Roux, Mathias Berciano, Thomas Maroutian, Guillaume Agnus, Pascal Aubert, Ludovic Largeau, Valérie Pillard, Samuel Serna, Daniel Benedikovic, Christopher Pendenque, Eric Cassan, Delphine Marris-Morini, Philippe Lecoœur, and Laurent Vivien, “*High-quality crystalline yttria-stabilized zirconia thin layer for photonic applications*,” Physical Review Materials, Volume 2, Issue 3, pp. 035202 – 035209, March 2018
- [011] Daniel Benedikovic, Carlos Alonso-Ramos, Diego Pérez-Galacho, Sylvain Guerber, Vladyslav Vakarin, Guillaume Marcaud, Xavier Le Roux, Eric Cassan, Delphine Marris-Morini, Pavel Cheben, Frédéric Boeuf, Charles Baudot, and Laurent Vivien, “*L-shaped fiber-chip grating couplers with high-directionality and low-reflectivity fabricated with deep-UV lithography*,” Optics Letters, Volume 42, Issue 17, pp. 3439 – 3442, August 2017
- [010] Léopold Viot, Daniel Benedikovic, Bertrand Szlag, Carlos Alonso-Ramos, Bayram Karakus, Jean-Michel Hartmann, Xavier Le Roux, Paul Crozat, Eric Cassan, Delphine Marris-Morini, Charles Baudot, Frédéric Boeuf, Jean-Marc Fédéli, Christophe Kopp, and Laurent Vivien, “*Integrated waveguide PIN photodiodes exploiting lateral Si/Ge/Si heterojunction*,” Optics Express, Volume 25, Issue 16, pp. 19487 – 19496, August 2017
- [009] Daniel Benedikovic, Mathias Berciano, Carlos Alonso-Ramos, Xavier Le Roux, Eric Cassan, Delphine Marris-Morini, and Laurent Vivien, “*Dispersion control of silicon nanophotonic waveguides using sub-wavelength grating metamaterials in near- and midIR wavelengths*,” Optics Express, Volume 25, Issue 16, pp. 19468 – 19478, August 2017
- [008] Carlos Alonso-Ramos, Milos Nedeljkovic, Daniel Benedikovic, Callum Littlejohns, Jordi Soler Penadés, Diego Pérez-Galacho, Laurent Vivien, Pavel Cheben, and Goran Z. Mashanovich, “*Germanium-on-silicon midinfrared grating couplers with low-reflectivity inverse taper excitation*,” Optics Letters, Volume 41, Issue 18, pp. 4324 – 4327, September 2016
- [007] Jan Litvik, Michal Kuba, Daniel Benedikovic, Jozef Dubovan, and Milan Dado, “*Numerical Estimation of Spectral Properties of Laser Based on Rate Equations*,” Hindawi Publishing Corporation, Mathematical Problems in Engineering, Volume 2016, Article ID 4152895, 11 pages, November 2016
- [006] Daniel Benedikovic, Carlos Alonso-Ramos, Pavel Cheben, Jens H. Schmid, Shurui Wang, Robert Halir, Alejandro Ortega-Moñux, Laurent Vivien, Dan-Xia Xu, Jean Lapointe, Siegfried Janz, and Milan Dado, “*Single-etch subwavelength engineered fiber-chip grating couplers for 1.3 μm telecom wavelength band*,” Optics Express, Volume 24, Issue 12, pp. 12893 – 12904, June 2016
- [005] Martin Papes, Pavel Cheben, Daniel Benedikovic, Jens H. Schmid, James Pond, Robert Halir, Alejandro Ortega-Moñux, Juan-Gonzalo Wangüemert-Pérez, Winnie N. Yee, Dan-Xia Xu, Siegfried Janz, Milan Dado, and Vladimir Vasinek, “*Fiber-chip edge coupler with*

- large mode size for silicon photonic wire waveguides*,” Optics Express, Volume 24, Issue 5, pp. 5026 – 5038, February 2016
- [004] Daniel Benedikovic, Carlos Alonso-Ramos, Pavel Cheben, Jens H. Schmid, Shurui Wang, Dan-Xia Xu, Jean Lapointe, Siegfried Janz, Robert Halir, Alejandro Ortega-Moñux, Juan-Gonzalo Wangüemert-Pérez, Iñigo Molina-Fernández, Jean-Marc Fédéli, Laurent Vivien, and Milan Dado, “*High-directionality fiber-chip grating coupler with interleaved trenches and subwavelength index-matching structure*,” Optics Letters, Volume 40, Issue 18, pp. 4190 – 4193, September 2015
- [003] Daniel Benedikovic, Pavel Cheben, Jens H. Schmid, Dan-Xia Xu, Boris Lamontagne, Shurui Wang, Jean Lapointe, Robert Halir, Alejandro Ortega-Moñux, Siegfried Janz, and Milan Dado, “*Subwavelength index engineered surface grating coupler with sub-decibel efficiency for 220-nm silicon-on-insulator waveguides*,” Optics Express, Volume 23, Issue 17, pp. 22628 – 22635, August 2015
- [002] Daniel Benedikovic, Pavel Cheben, Jens H. Schmid, Dan-Xia Xu, Jean Lapointe, Shurui Wang, Robert Halir, Alejandro Ortega-Moñux, Siegfried Janz, and Milan Dado, “*High-efficiency single etch step apodized grating coupler using subwavelength structures*,” Laser & Photonics Reviews, Volume 8, Issue 6, pp. L93 – L97, October 2014
- [001] Daniel Benedikovic, Jan Litvik, Michal Kuba, and Milan Dado, “*Spectral transmission characteristics of advanced amplitude modulation formats*,” Communications – Scientific Letters of the University of Žilina, Volume 15, Issue 2A, pp. 67 – 70, March 2013

International conferences (invited, keynote, tutorials)

- [124] P. Cheben, “Recent progress in metamaterial integrated photonics,” In Proc.: SPIE Photonics West 2025, San Francisco, California, USA, January 2025
- [123] D. Benedikovic, “Metamaterial-engineered fiber-chip couplers in silicon and silicon nitride waveguides,” In Proc.: SPIE Photonics West 2025, San Francisco, California, USA, January 2025
- [122] D. Benedikovic, “Advancements in low-loss silicon nitride surface grating couplers,” In Proc.: SPIE Photonics West 2025, San Francisco, California, USA, January 2025
- [121] W. N. Ye, D. Benedikovic, Q. Liu, S. Khajavi, W. Fraser, X. Xin, K. K. MacKay, T. Hao, N. Purwaha, Y. Xiong, M. Ibrahim, A. Sánchez-Postigo, S. Salhi, D. Melati, D.-X. Xu, J.H. Schmid, P. Cheben, T. J. Smy, and A. Atieh, “Silicon integrated photonic devices with subwavelength metamaterials,” In Proc.: IEEE Photonics Conference (IPC) 2024, Rome, Italy, November 2024
- [120] D. Benedikovic, “Coupling strategies for integrated photonics: advances and opportunities,” In Proc.: 23rd Slovak-Czech-Polish Optical Conference On Wave and Quantum Aspects On Contemporary Optics, Strbske Pleso, Slovakia, September 2024
- W. N. Ye, D. Gostimirovic, Y. Xiong, K. K. MacKay, S. Khajavi, W. Fraser, X. Xin, D. Benedikovic, B. A. Dorin, Y. Sun, Q. Liu, T. Hao, N. Purwaha, M. R. Fatin, S. Li, S. Salhi, D. Melati, A. Sanchez-Postigo, P. Cheben, J. H. Schmid, T. Smy, and A. Atieh, “Enhancing Telecommunication and Data Communication with Silicon Integrated Photonics,” In Proc.: Frontiers in Optics + Laser Science 2024 (FiO, LS), Denver, Colorado, United States, September 2024
- [119] R. Korček, W. Fraser, S. Salhi, X. Xin, Q. Wilmart, D. Medina, S. Edmond, T. Dominguez Bucio, F. Gardes, W. N. Ye, J. H. Schmid, P. Cheben, D. Melati, L. Vivien, C. Alonso-Ramos, and D. Benedikovic, “Scalable surface gratings for efficient fiber-chip and free-space optical coupling,” In Proc.: Advanced Photonics Congress 2024, Quebec City, Quebec, Canada, July-August 2024
- [118] P. Cheben, J.H. Schmid, J. Zhang, M. Saad Bin-Alam, A. F. Hinestrosa, W. Fraser, R. Korček, J.M. Luque-González, C.P. Armenta, A. Sánchez-Postigo, A. Ortega-Moñux, J. G. Wangüemert-Pérez, I. Molina-Fernández, R. Halir, P. Ginel-Moreno, D. Benedikovič, M. Dado, S. Khajavi, W. N. Ye, Z. Mokeddem, D. Melati, C. Alonso-Ramos, D. González-Andrade, L. Vivien, D. Sirmaci, I. Staude, D.-X. Xu, Y. Grinberg, S. Janz, S. Wang, M. Vachon, R. Cheriton, R. Fernández De Cabo, A. V. Velasco, C. Naraine, J. Bradley, and A. Knights, “Recent advances in metamaterial silicon photonic devices and Huygens’ metawaveguides,” In Proc.: 24th International Conference on Transparent Optical Networks 2024 (ICTON 2024), Bari, Italy, July 2024.
- [117] R. Korček, W. Fraser, D. Medina Quiroz, Q. Wilmart, S. Edmond, T. Dominguez Bucio, F. Gardes, J. H. Schmid, P. Cheben, W. N. Ye, I. Glesk, J. Litvik, L. Vivien, C. Alonso Ramos, and D. Benedikovic, “Advances in low loss fiber chip couplers for silicon nitride photonic integrated circuits,” In Proc.: IEEE International Conference on Nanotechnology 2024 (IEEE-NANO) 2024, Gijon, Spain, July 2024
- [116] R. Korček, W. Fraser, T. Dominguez-Bucio, F. Gardes, J. Jašák, M. Gonda, Q. Wilmart, D. Medina, S. Edmond, J. Litvik, I. Glesk, J. H. Schmid, P. Cheben, W. N. Ye, L. Vivien, C. Alonso-Ramos, and D. Benedikovic, “Low-Loss Silicon Nitride Waveguide Couplers For

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