Raphaël Le Bidan

Associate Professor (HDR)

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Research Interests

Expertise — Channel coding, digital receiver design, signal processing, deep learning, generative AI.

Applications — Wireless communications, fiber-optic transport and access networks, free-space optical satellite communications, digital data storage.

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Experience

2003–present **Associate Professor (Maître de Conférences)**, *IMT Atlantique*, Brest, France
Mathematical & Electrical Engineering (MEE) Dept.
Lab-STICC research laboratory, UMR CNRS 6285

2023 Qualified as Full Professor, CNU Section 61

Education

2022 **Habilitation à Diriger des Recherches (HDR)**, *Université de Bretagne Occidentale*, Brest, France
Channel coding and digital signal processing for ever faster and more reliable communications.

2003 **PhD in Electronics**, *INSA de Rennes*, Rennes, France
Turbo-equalization for bandwidth-efficient digital communications over frequency-selective channels.
Advisors: C. Laot and D. Leroux, ENST Bretagne. thesis

2000 **MSc (DEA) in Electronics**, *INSA de Rennes*, Rennes, France

2000 **Engineering Degree (MEng.)**, *INSA de Rennes*, Rennes, France
Major in Electronics and Communication Systems.

Grants

Amounts shown reflect funds directly managed by the author.

2024	ARED (Région Bretagne) / TéSA co-funded fellowship, 36 months	*130k€*
2024	Carnot TSN fellowship, 12 months	*56k€*
2021	PRC ANR-21-CE25-0006 AI4CODE (**project coordinator**), 48 months	*150k€*
2021	Carnot TSN fellowship, 10 months	*45k€*
2020	Carnot TSN fellowship, 12 months	*54k€*
2017	CNES / ONERA co-funded fellowship, 36 months	*100k€*
2016	PraCom fellowship, 36 months	*100k€*
2013	FUI 14 GREENCOMM, 36 months	*68k€*
2013	ARED (Région Bretagne) / PraCom co-funded fellowship, 36 months	*100k€*
2010	FUI 9 100G-FLEX, 36 months	*90k€*
2009	PraCom fellowship, 36 months	*90k€*
2009	Fondation Télécom "Futur & Ruptures" fellowship, 36 months	*100k€*

Industrial Contracts

2025	Safran Data Systems, CIFRE supervision contract, 36 months	*30k€*
2023	Safran Data Systems, CIFRE supervision contract, 36 months	–
2022	FiberHome USA, research contract, 18 months	*170k€*
2022	CNES, research contract, 6 months	*30k€*
2021	CNES, research contract, 3 months	*15k€*
2019	Orange Labs, CIFRE supervision contract, 36 months	*30k€*
2018	CNES, research contract, 18 months	*20k€*
2017	INEO Defense, research contract, 48 months	*140k€*
2016	CNES, research contract, 3 months	*25k€*
2016	Huawei, research contract, 12 months	*150k€*
2014	Hologram Industries, research contract, 3 months	*9k€*
2013	Orange Labs, CIFRE supervision contract, 36 months	*30k€*

2012	Orange Labs, research contract, 24 months	*65k€*
2010	Naval Group, research contract, 2 months	*10k€*
2010	Orange Labs, CIFRE supervision contract, 36 months	*30k€*
2004	France Télécom R&D, research contract, 36 months	*165k€*

Teaching

IMT Atlantique

2026–present *Deep learning in practice* (course coordinator, MSc program IT/EMB-AI, 30h/yr).

2024–present *Introduction to the theory and practice of machine learning* (instructor, M.Eng. program, TAF MCE, 20h/yr).

2019–present *ECC: Error-correction coding* (course coordinator, M.Eng. program, TAF STAR, 30h/yr)

2019–present *Probability and statistics* (instructor, M.Eng. program, UE MATHS, 30h/yr).

2019–2023 *RESMOB: Wireless networks* (course coordinator, M.Eng. program, TAF STAR, 30h/yr)

2013–2018 *F4B301B: Channel coding: From theory to practice* (course coordinator, M.Eng. program, 30h/yr)

2012–2018 *RT320: Wireless transmission systems* (course coordinator, M.Eng. program, 30h/yr)

2010–2019 *TC101B: Probability* (instructor, M.Eng. program, 20h/yr).

2008–2018 *MTS423: Source and channel coding* (course coordinator, M.Eng. program, 30h/yr)

2006–2012 *F4B401A: Information theory and coding* (course coordinator, M.Eng. program, 30h/yr)

2005–2017 *F14B201: Communication systems architecture* (course coordinator, M.Eng. program, 30h/yr)

Other institutions

2005–2021 Continuing education: coordinator and main instructor for the course *Essentials of Channel Coding* (7 editions, 20h/session). Regular contributions to *Satellite Communications* and *HF Communications* courses.

2015 Invited lecturer at Université de Ouagadougou, Burkina Faso: *Channel coding* (MSc course, 28h).

2014–2019 Regular invited lecturer at CentraleSupélec Rennes: *Introduction to turbo codes* (M.Eng. course, 6h/yr).

2014–2018 Regular invited lecturer at Université de Rennes 1, *M2 SISEA: Information theory and coding* (MSc course, 8h/yr).

Supervision

PhD students

2025–present Yoann Bendahan, *Digital receiver architectures for very high-capacity polarization-multiplexed coherent optical space communications.* CIFRE Safran Data Systems. Co-advised with M. Arzel.

2024–present Youssef Minyari, *Advanced MIMO techniques and DSP receiver algorithms for SatCom FSO feeder links.* Co-advised with C. Poulliat and A. Lecointre (Thales Alenia Space).

2023–present Brahim Oubaha, *Bio-inspired neural networks for weakly supervised learning.* Co-advised with C. Berrou and Y. Nasser. To be defended July 6th, 2026.

2023–2024 Albane Colin de Verdière, *Digital receiver architectures for high-capacity coherent polarization-multiplexed optical satellite communications.* CIFRE Safran Data Systems. Co-advised with M. Arzel.

2022–2025 Ahmad Ismail, *Contributions to neural decoding of linear block codes* Co-advised with E. Dupraz and C. Abdel Nour. thesis

2019–2023 Flávio André Nogueira Sempaio, *Study of digital compensation techniques for 50G-PON optical access networks.* CIFRE Orange Labs. Co-advised with Y. Jaouen, E. Pincemin, and N. Genay. thesis

2017–2020 Laurie Paillier, *Architecture of a coherent receiver for satellite-to-ground links with adaptive optics.* Co-advised with Y. Jaouen, J.-M. Conan, N. Vedrenne and G. Artaud. thesis

2016–2019 Alex The Phuong Nguyen, *Short frame wireless communications: New challenges for the physical layer.* Co-advised with F. Guilloud. thesis

2013–2017 Van-Khan Mai, *Advanced methods of speech processing and noise reduction for mobile devices.* Co-advised with D. Pastor and A. Aïssa El Bey. thesis

2012–2016 Mengdi Song, *WDM transmission of 400 Gbps and beyond using multi-band OFDM & Nyquist-WDM.* CIFRE Orange Labs. Co-advised with Y. Jaouen and E. Pincemin. thesis

2009–2013 Julie Karaki, *100 Gb/s coherent multi-band OFDM for long-haul WDM optical transmission.* CIFRE Orange Labs. Co-advised with Y. Jaouen and E. Pincemin. thesis

2009–2013 Omid Zia-Chahabi, *DSP techniques for ultra-high-speed coherent optical transmission systems.* Co-advised with C. Laot and M. Morvan. **Runner-up, 2013 Fondation Télécom Best Thesis Award.** thesis

2009–2012 Moustafa El Aoun, *Optimization of coding and retransmission techniques for radio systems with feedback.* Co-advised with X. Lagrange. thesis

2004–2008 Samar Changuel, *Analysis, optimization and applications of Reed-Solomon product turbo codes.* Co-advised with R. Pyndiah. thesis

2001–2005 Rong Zhou, *Reed-Solomon block turbo codes and their applications.* Co-advised with R. Pyndiah and A. Goalic. 🎓 thesis

Postdoctoral researchers

2024–2025 Kassem Saied, *Implementation-aware LDPC and ordered statistics decoding.*. Co-advised with S. Weithoffer and C. Abdel Nour.

2022–2023 Kassem Saied, *LDPC code design for 800 Gb/s optical transmission.*

2021–2022 Alireza Tasdighi, *Construction of short LDPC codes via reinforcement learning.* Co-advised with E. Dupraz.

2021–2022 Rami Klaimi, *AI methods for turbo codes (AIM).* Co-advised with S. Weithoffer and C. Abdel Nour.

2020–2021 Rami Klaimi, *Belief in Turbo (BiT).* Co-advised with C. Abdel Nour and S. Weithoffer

2016–2017 Zeina Mheich, *Short code design for ultra-reliable low-latency communications.* Co-advised with F. Guilloud and E. Dupraz.

2013–2014 Haïfa Fares, *Performance limits of coding under power budget constraints.* Co-advised with F. Guilloud.

2013–2014 Julie Karaki , *Experimental SD-FEC LDPC coding on a coherent optical testbed.*

2011–2012 Thierry Le Gall, *DSP algorithms for 100 Gb/s multi-band optical OFDM reception.*

Service

Institutional service

2021–present Head of the CODES team within Lab-STICC research laboratory, UMR CNRS 6285.

2026 Reviewer for ANR

2023 Hiring committee (COS) for an ssociate Professor Section 61 at ENSEA/ETIS.

PhD examination committees

2025 Louis Tomczyk, *Enhanced monitoring solutions for optical fiber networks*, Institut Polytechnique de Paris, Paris (**reviewer**).

2025 Arthur Michon, *Deep learning enhanced MIMO / NOMA message-passing-based receivers*, Université de Toulouse, Toulouse.

2025 Ian Fischer Schilling, *Design and FPGA prototyping of an advanced receiver based on expectation propagation*, Université de Bordeaux, Bordeaux (**reviewer**).

2024 Gastón De Boni Rovella, *Machine Learning based channel decoders for M2M-type communications*, ISAE, Toulouse (**reviewer**).

2024 Abraham Sergio Sotomayor Fernandez, *Study and implementation of nonlinear equalizers using artificial neural networks for coherent optical transmission systems*, IMT Atlantique, Brest.

2023 Abdoul Hadi-Konfé, *Contributions to the design of spatially coupled LDPC codes for 5G NR radio access technology*, Université Nazi Boni, Bobo Dioulasso, Burkina Faso.

2022 Abtin Shahkarami, *Complexity reduction over bi-RNN-based Kerr nonlinearity equalization in dual-polarization fiber-optic communications via a CRNN-based approach*, Institut Polytechnique de Paris, Paris (**reviewer**).

2018 Alaa Khreis, *Cross-layer optimization of cooperative and coordinative schemes for next generation cellular networks*, Université Paris Saclay, Paris.

2009 Andrzej Michal Kabat, *Contributions in error correction coding : soft-decision decoding of reed-solomon codes and distributed coding for cooperative wireless communications*, Telecom Bretagne, Brest.

Conference organization

2023 11th Int. Symp. on Topics in Coding (ISTC 2023) – Publicity Chair.

2016 9th Int. Symp. on Turbo Codes (ISTC 2016) – Proceedings Co-Chair.

2010 6th Int. Symp. on Turbo Codes (ISTC 2010) – Publications Co-Chair.

Professional memberships

IEEE Senior Member (member since 2001), GDR IASIS (since 2003), GDR IM GT C2 (since 2011).

Refereeing

Journals IEEE Trans. Commun., IEEE Commun. Lett., IEEE Trans. Wireless Commun., IEEE Wireless Commun. Lett., IET Commun., Elsevier Opt. Fiber Technol., Annales des Télécommunications.

Conferences IEEE GLOBECOM, IEEE ICC, ECOC, IEEE PIMRC, ISTC, GRETSI, EUSIPCO.

Invited Talks

2019 "Forward-Error-Correction for optical transport networks," *COMET Seminar "Codes correcteurs d'erreurs pour les communications spatiales"*, CNES, Toulouse, France, 19 June 2019.

2008 "Apports du traitement du signal numérique aux systèmes de transmission optique très haut-débit," *Thematic Day "100Gb Ethernet"*, Technopôle Anticipa, Lannion, France, 23 Oct. 2008.

2005 "Une introduction aux turbocodes et au principe turbo," *SEE Workshop "Nouvelles formes d'ondes en imagerie, localisation et communication"*, ENSTA, Paris, France, 17–18 Mar. 2005. hal-01876244

2004 "Turbo codes et principe turbo: Des origines aux applications," *SEE Workshop "Quel avenir pour les communications radio?"*, CNAM, Paris, France, 17–18 Jun. 2004. hal-01887885

Publications

Google Scholar – 0000-0002-0355-0679 – HAL

Journal Articles

15. L. Paillier, **R. Le Bidan**, J.-M. Conan, G. Artaud, N. Védrenne, and Y. Jaouën, "Space-ground coherent optical links: ground receiver performance with adaptive optics and digital phase-locked loop," *IEEE J. Lightw. Technol.*, vol. 38, no. 20, pp. 5716–5727, Oct. 2020. doi:10.1109/JLT.2020.3003561

14. A. T. P. Nguyen, F. Guilloud, and **R. Le Bidan**, "On the optimization of resources for short frame synchronization," *Annals Telecommun.*, vol. 75, no. 11–12, pp. 635–640, Aug. 2020. doi:10.1007/s12243-020-00787-y

13. A. T. P. Nguyen, **R. Le Bidan**, and F. Guilloud, "Trade-off between frame synchronization and channel decoding for short packets," *IEEE Commun. Lett.*, vol. 23, no. 6, pp. 979–982, June 2019. doi:10.1109/LCOMM.2019.2913363

12. V.-K. Mai, D. Pastor, A. Aïssa El Bey, and **R. Le Bidan**, "Semi-parametric joint detection and estimation for speech enhancement based on minimum mean square error," *Speech Commun.*, vol. 102, pp. 27–38, Sept. 2018. doi:10.1016/j.specom.2018.05.005

11. V.-K. Mai, D. Pastor, A. Aïssa El Bey, and **R. Le Bidan**, "Robust estimation of non-stationary noise power spectrum for speech enhancement," *IEEE/ACM Trans. Audio, Speech, Language Process.*, vol. 23, no. 4, pp. 670–682, Feb. 2015. doi:10.1109/TASLP.2015.2401426

10. E. Pincemin, M. Song, J. Karaki, O. Zia-Chahabi, T. Guillossou, D. Grot, G. Thouenon, C. Betoule, R. Clavier, A. Poudoulec, M. Van der Keur, Y. Jaouën, **R. Le Bidan**, T. Le Gall, P. Gravey, M. Morvan, B. Dumas-Feris, M.-L. Moulinard, and G. Froc, "Multi-band OFDM transmission at 100 Gbps with sub-band optical switching," (invited), *IEEE J. Lightw. Technol.*, vol. 32, no. 12, pp. 2202–2219, June 2014. doi:10.1109/JLT.2014.2322517

9. J. Karaki, E. Giacoumidis, D. Grot, T. Guillossou, C. Gosset, **R. Le Bidan**, T. Le Gall, Y. Jaouën, and E. Pincemin, "Dual-polarization multi-band OFDM versus single-carrier DP-QPSK for 100 Gb/s long-haul WDM transmission over legacy infrastructure," *Opt. Express*, vol. 21, no. 14, pp. 16982–16991, July 2013. doi:10.1364/OE.21.016982

8. O. Zia-Chahabi, **R. Le Bidan**, M. Morvan, and C. Laot, "Efficient frequency-domain implementation of block-LMS/CMA fractionally spaced equalization for coherent optical communications," *IEEE Photon. Technol. Lett.*, vol. 23, no. 22, pp. 1697–1699, Nov. 2011. doi:10.1109/LPT.2011.2166257

7. E. Pincemin, J. Karaki, Y. Loussouarn, H. Poignant, C. Betoule, G. Thouenon, and **R. Le Bidan**, "Challenges of 40/100 Gbps and higher-rate deployments over long-haul transport network," *Opt. Fiber Technol.*, vol. 17, no. 5, pp. 365–362, Oct. 2011. doi:10.1016/j.yofte.2011.07.011

6. P. Adde, C. Jégo, and **R. Le Bidan**, "Near maximum likelihood soft-decision decoding of a particular class of rate-1/2 systematic linear block codes," *Electron. Lett.*, vol. 47, no. 4, pp. 259–260, Feb. 2011. doi:10.1049/el.2010.7857

5. S. Changuel, **R. Le Bidan**, and R. Pyndiah, "Iterative decoding of product codes over binary erasure channel," *Electron. Lett.*, vol. 46, no. 7, pp. 503–505, Apr. 2010. doi:10.1049/el.2010.0411

4. A. Graell i Amat and **R. Le Bidan**, "Minimum distance and convergence analysis of Hamming-Accumulate-Accumulate codes," *IEEE Trans. Commun.*, vol. 57, no. 12, pp. 3518–3523, Dec. 2009. doi:10.1109/TCOMM.2009.12.080579

3. **R. Le Bidan**, C. Leroux, C. Jégo, R. Pyndiah, and P. Adde, "Reed-Solomon turbo product codes for optical communications: from code optimization to decoder design," *EURASIP J. Wirel. Commun. Netw.*, vol. 2008, pp. 1–14, May 2008. doi:10.1155/2008/658042

2. R. Zhou, **R. Le Bidan**, R. Pyndiah, and A. Goalic, "Low-complexity high-rate Reed-Solomon block turbo codes," *IEEE Trans. Commun.*, vol. 55, no. 9, pp. 1656–1660, Sept. 2007. doi:10.1109/TCOMM.2007.904365

1. C. Laot, **R. Le Bidan**, and D. Leroux, "Low-complexity MMSE turbo-equalization: a possible solution for EDGE," *IEEE Trans. Wireless Commun.*, vol. 4, no. 3, pp. 965–974, May 2005. doi:10.1109/TWC.2005.847095

International Conference Papers

48. Y. Minyari, A. Lecointre, **R. Le Bidan**, and C. Poulliat, "Robust MISO coherent optical GEO satellite feeder link with relaxed implementation constraints," in *Proc. IEEE Int. Conf. on Space Opt. Sys. and Applications (ICSOS)*, Kyoto, Japan, 28–31 Oct. 2025. **Best student paper award**. doi:10.1109/ICSOS66026.2025.11443161

47. A. Thomas, A. Le Bian, A. Quentel, G. Artaud, J.-F. Chouteau, S. Poulenard, T. Anfray, and **R. Le Bidan**, "Design and validation of a CCSDS O3K synchronization front-end, tailor made for a non-coherent 10 Gbps GEO optical downlink," in *Proc. IEEE Int. Conf. on Space Opt. Sys. and Applications (ICSOS)*, Kyoto, Japan, 28–31 Oct. 2025. doi:10.1109/ICSOS66026.2025.11443202

46. B. Oubaha, C. Berrou, Y. Nasser, and **R. Le Bidan**, "The benefits of sparse connections in neural networks," in *Proc. 12th Int. Conf. on Artificial Intelligence (ICOAI)*, Paris, France, 27–29 Oct. 2025. hal-05567219

45. A. Thomas, C. Richard, A. Beignet, A. Le Bian, L.-D. Haret, G. Artaud, and **R. Le Bidan**, "Laboratory assessment of SDA and CCSDS non-coherent downlink performances," in *Proc. 10th ESA Int. Workshop on Tracking, Telemetry and Command Systems for Space Applications (TTC)*, ESA, 25–28 Oct. 2025, Darmstadt, Germany. hal-05567040

44. A. Ismail, **R. Le Bidan**, E. Dupraz, and C. Abel Nour, "Learning variable node selection for improved multi-round belief propagation decoding," in *Proc. Int. Symp. on Topics in Coding (ISTC)*, Los Angeles, CA, USA, , Spain, 18–22 Aug. 2025. 10.1109/ISTC65386.2025.11154498

43. A. Ismail, **R. Le Bidan**, E. Dupraz and C. Abel Nour, "Doing more with less: Towards more data-efficient syndrome-based neural decoders," in *Proc. IEEE Int. Conf. on Machine Learn. for Commun. and Netw. (ICMLCN)*, Barcelona, Spain, 26–29 May 2025. 10.1109/ICMLCN64995.2025.11140226

42. A.-H. Konfé, P. Poda, and **R. Le Bidan**, "Low-complexity sliding window decoding of spatially-coupled LDPC codes constructed from short 5G NR LDPC," in *Proc. 11th Int. Conf. on Wireless Netw. and Mobile Commun. (WINCOM)*, Leeds, England, 23–25 July 2024. 10.1109/WINCOM62286.2024.10657015

41. B. Oubaha, C. Berrou, X. Jie, Y. Nasser, and **R. Le Bidan**, "On diversity in discriminative neural networks," in *Proc. 12th Int. Symp. on Signal, Image, Video and Commun. (ISIVC)*, Marrakech, Morocco, 21–23 May 2024. 10.1109/ISIVC61350.2024.10577798

40. **R. Le Bidan**, H. Méric, and J. Sommer, "Frame format and DSP receiver design for a 56-GBaud GEO DP-QPSK coherent optical feeder link," in *Proc. IEEE Int. Conf. on Space Opt. Sys. and Applications (ICSOS)*, Vancouver, BC, Canada, 11–13 Oct. 2023. 10.1109/ICSOS59710.2023.10490279

39. A.-H. Konfé, P. Poda, and **R. Le Bidan**, "Design techniques of spatially coupled LDPC codes: a review and tutorial on 5G New Radio," in *Proc. Colloque Africain sur la Recherche en Informatique et en Mathématiques Appliquées (CARI)*, Yaoundé, Cameroon, 4–7 Oct. 2022. hal-03714594

38. A.-H. Konfé, P. Poda, and **R. Le Bidan**, "Enhancing 5G forward error correction codes for URLLC by spatial coupling," in *Proc. 11th Int. Symp. on Signal, Image, Video and Commun. (ISIVC)*, El Jadida, Morocco, 18–20 May 2022. 10.1109/ISIVC54825.2022.9800214

37. F. N. Sampaio, N. Genay, E. Pincemin, **R. Le Bidan**, Y. Jaouën, and F. Bourgart, "Study of minimum mean square error optimal equalizers for 50 Gbit/s high speed passive optical networks," in *Proc. Signal Proc. in Photonic Commun. (SPPCom)*, paper SpF1E.2, Washington, DC, USA, 26–30 July 2021. 10.1364/SPPCOM.2021.SpF1E.2

36. F. N. Sampaio, E. Pincemin, N. Genay, L. A. Neto, **R. Le Bidan**, and Y. Jaouën, "An analysis of linear digital equalization in 50 Gbit/s HS-PONs to compensate the combined effect of chirp and chromatic dispersion," in *Proc. European Conf. on Lasers and Electro-Optic (CLEO) / European Quantum Elect. Conf. (Europe-EQEC)*, Munich, Germany, 21–25 June 2021. 10.1109/CLEO/Europe-EQEC52157.2021.9541738

35. L. Paillier, J.-M. Conan, **R. Le Bidan**, G. Artaud, N. Védrenne, and Y. Jaouën, "Adaptive optics assisted space-ground coherent optical links: impact of turbulence on carrier recovery," in *Proc. Workshop on Commun. and Obs. through Atmospheric Turbulence (COAT)*, Châtillon, France, 2–3 Dec. 2019. hal-02926388

34. L. Paillier, J.-M. Conan, **R. Le Bidan**, G. Artaud, N. Védrenne, and Y. Jaouën, "Adaptive optics assisted space-ground coherent optical links: ground receiver performance with digital phase-locked loop," in *Proc. IEEE Int. Conf. on Space Opt. Sys. and Applications (ICSOS)*, Portland, OR, USA, 14–16 Oct. 2019. 10.1109/ICSOS45490.2019.8978983

33. A. T. P. Nguyen, **R. Le Bidan**, and F. Guilloud, "Confidence level for finite blocklength ultra reliable communication over fading channels," in *Proc. IEEE 30th Annual Int. Symp. on Personal, Indoor and Mobile Radio Commun. (PIMRC)*, Istanbul, Turkey, 8–11 Sept. 2019. 10.1109/PIMRC.2019.8904353

32. A. T. P. Nguyen, **R. Le Bidan**, and F. Guilloud, "Superimposed frame synchronization optimization for finite blocklength regime," in *Proc. IEEE Wireless Commun. and Netw. Conf. Workshops (WCNCW)*, Marrakech, Morocco, 15–18 Apr. 2019. 10.1109/WCNCW.2019.8902552

31. A. T. P. Nguyen, **R. Le Bidan**, and F. Guilloud, "Short packet communications: a physical layer comparison for block-fading channels," in *Proc. 25th Int. Conf. on Telecommun. (ICT)*, Saint-Malo, France, 26–28 June 2018. 10.1109/ICT.2018.8464914

30. G. Artaud, N. Védrenne, **R. Le Bidan**, M.-T. Velluet, and L. Paillier, "Physical layer performance assessment of free-space optical communications links," in *Proc. IEEE Int. Conf. on Space Opt. Sys. and Applications (ICSOS)*, Naha, Japan, 14–16 Nov. 2017. 10.1109/ICSOS.2017.8357399

29. Y. Tai, F. Guilloud, C. Laot, **R. Le Bidan**, and H. Wang, "Joint equalization and decoding scheme using modified spinal codes for underwater communications," in *Proc. OCEANS*, Monterey, CA, USA, 19–23 Sept. 2016. 10.1109/OCEANS.2016.7761418

28. M. Song, E. Pincemin, D. Grot, T. Guillossou, Y. Jaouën, and **R. Le Bidan**, "Coherent 100/200 Gbps QPSK/16QAM-OFDM transmission over 1000 km of G.652 or G.655 fibre," in *Proc. 17th Int. Conf. on Transparent Opt. Netw. (ICTON)*, paper We.D1.2, Budapest, Hungary, 5–9 July 2015. 10.1109/ICTON.2015.7193616

27. E. Nogues, **R. Le Bidan**, and D. Pastor, "Active noise control with digital PDM MEMS mics," in *Proc. IEEE Int. Symp. on Consumer Electronics (ISCE)*, Madrid, Spain, 24–26 June 2015. doi:10.1109/ISCE.2015.7177788

26. M. Song, E. Pincemin, J. Karaki, A. Poudoullec, N. Nicolas, M. Van der Keur, Y. Jaouën, **R. Le Bidan**, P. Gravey, M. Morvan, and G. Froc, "100 Gbps multi-band OFDM transmission over 1000 km of G.652 fibre and a cascade of five sub-wavelength OADMs," in *Proc. Asia Commun. and Photonics Conf. (ACP)*, paper AW4E3, Shanghai, China, 11-14 Nov. 2014. doi:10.1364/ACPC.2014.AW4F.3

25. M. Song, E. Pincemin, D. Grot, T. Guillossou, Y. Jaouën, and **R. Le Bidan**, "Robustness of coherent 100 Gbps QPSK and 200 Gbps 16QAM-OFDM to practical implementation impairments," in *Proc. Signal Proc. in Photonic Commun. (SPPCom)*, paper SM3E-5, San Diego, CA, USA, 13–17 July 2014. doi:10.1364/SPPCOM.2014.SM3E.5

24. J. Karaki, **R. Le Bidan**, and E. Pincemin, "A simple and high-performance method for combining soft-decision FEC with differential encoding in 100 Gbps dual-polarization QPSK system," in *Proc. Optical Fiber Commun. Conf. (OFC)*, paper M3A.7, San Francisco, CA, USA, 9–13 Mar. 2014. doi:10.1364/OFC.2014.M3A.7

23. P. Adde and **R. Le Bidan**, "A low-complexity soft-decision decoding architecture for the binary extended Golay code," in *Proc. 19th Int. Conf. on Electronics, Circuits, and Sys. (ICECS)*, Seville, Spain, 9–12 Dec. 2012. doi:10.1109/ICECS.2012.6463628

22. M. El Aoun, X. Lagrange, **R. Le Bidan**, and R. Pyndiah, "Throughput analysis of hybrid single-packet and multiple-packet truncated type-II HARQ strategies with unreliable feedback channel," in *Proc. IEEE Wireless Commun. and Networking Conf. (WCNC)*, Paris, France, 1–4 Apr. 2012. IEEEXplore

21. J. Karaki, E. Pincemin, D. Grot, T. Guillossou, Y. Jaouën, **R. Le Bidan**, and T. Le Gall, "Dual-polarization multi-band OFDM versus single-carrier DP-QPSK for 100 Gbps long-haul WDM transmission over legacy infrastructure," in *Proc. 38th European Conf. and Exhibition on Optical Commun. (ECOC)*, paper P4.17, Amsterdam, Netherlands, 16–20 Sept. 2012. doi:10.1364/ECEOC.2012.P4.17

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