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SIGNAL PROCESSING SYSTEMS GROUP
DEPARTMENT OF ELECTRICAL ENGINEERING
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PREVIOUS ACADEMIC APPOINTMENTS

- 2014-2016 **Senior Research Associate**, Department of Electronic & Electrical Engineering, University College London (UCL), UK.
- 2012-2014 **Marie Curie Intra-European Fellow**, Department of Engineering, University of Cambridge, UK.
- 2011-2012 **Newton International Fellow**, Department of Engineering, University of Cambridge, UK.
- 2006-2007 **Research Intern**, Institut National de la Recherche Scientifique, Énergie, Matériaux et Télécommunications (INRS-EMT), Montreal, Canada.
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RESEARCH GRANTS

- 2018-2023 **ERC Starting Grant**, project “Fundamentals of the Nonlinear Optical Channel (FUN-NOTCH)”, funded by the European Research Council (ERC), Department of Electrical Engineering, TU/e, The Netherlands.
- 2017-2022 **VIDI Grant**, project “Increasing the Capacity of Optical Nonlinear Interfering Channels (ICONIC)”, funded by the Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO), Department of Electrical Engineering, TU/e, The Netherlands.
- 2016 **University Research Fellowship**, funded by The Royal Society, Department of Electronic & Electrical Engineering, UCL, UK. Declined to accept tenure-track position at TU/e.
- 2016 **NWO Visitor’s Travel Grant**, funded by the Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO), Department of Electrical Engineering, TU/e, The Netherlands.
- 2012-2014 **Marie Curie Intra-European Fellowship**, project “Bit-interleaved Coded Modulation: Fundamental Understandings,” funded by the European Commission (FP7 programme), Department of Engineering, University of Cambridge, UK.
- 2011-2012 **Newton International Fellowship**, project “Fundamental limits of bit-interleaved coded modulation,” funded by The British Academy and The Royal Society, Department of Engineering, University of Cambridge, UK.
- 2012-2016 **Project Grant Junior Researchers** (Co-applicant) project “MIMO-BICM: Fundamentals, Analysis, and Design,” funded by the Swedish Research Council (#621-2011-5950), Sweden.
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EDUCATION

- 2007-2011 **Doctor of Philosophy in Signals and Systems**, Communication Systems Group, Department of Signals and Systems, Chalmers University of Technology, Gothenburg, Sweden.
- 2004-2005 **MSc in Electronic Engineering–Telecommunications** (*Magíster en Ciencias de la Ingeniería Electrónica*), Department of Electronics Engineering, Universidad Técnica Federico Santa María (UTFSM), Valparaíso, Chile.
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TEACHING EXPERIENCE

- 2017-2018 **Lecturer**, “Communication theory (5ETB0),” Department of Electrical Engineering, TU/e, The Netherlands.
- 2016-2017 **Co-lecturer**, “Communication theory (5ETB0),” Department of Electrical Engineering, TU/e, The Netherlands.
- 2015 and 2016 **Guest Lecturer**, “Optical Transmission and Networks,” Department of Electronic & Electrical Engineering, UCL, UK.

- 2014 **Guest Lecturer**, “Coded Modulation,” Institute for Communications Engineering, Technische Universität München, Germany.
- 2012 and 2013 **Supervisor** (two terms), “Data Transmission,” Department of Engineering, University of Cambridge, UK.
- 2010 **Guest Lecturer**, “Error Control Coding,” PhD level course, Department of Signals and Systems, Chalmers University of Technology, Gothenburg, Sweden.
- 2009-2010 **Lecturer** (two terms), “Introduction to Communication Engineering,” Communication Engineering Master Program, Department of Signals and Systems, Chalmers University of Technology, Gothenburg, Sweden.
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PHD STUDENT SUPERVISION

- 2017-Present **Supervisor** Vinícius Oliari, Department of Electrical Engineering, TU/e, The Netherlands.
- 2016-Present **Co-Supervisor** PhD student Ashkan Farsaei (main supervisor F.J.M. Willems), Department of Electrical Engineering, TU/e, The Netherlands.
- 2013-Present **Co-Supervisor** Nikita Shevchenko (main supervisor P. Bayvel), Department of Electronic & Electrical Engineering, UCL, UK.
- 2014-2017 **Co-Supervisor** Gabriele Liga (main supervisor P. Bayvel, **graduated in Apr. 2017**), Department of Electronic & Electrical Engineering, UCL, UK.
- 2011-2016 **Co-Supervisor** Mikhail Ivanov (main supervisor F. Brännström; **graduated in Sep. 2016**), Department of Signals and Systems, Chalmers University of Technology, Gothenburg, Sweden.
- 2011-2016 **Co-Supervisor** Christian Häger (main supervisor A. Graell i Amat; **graduated in May 2016**), Department of Signals and Systems, Chalmers University of Technology, Gothenburg, Sweden.
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MSc STUDENT SUPERVISION

- 2010 **Co-Supervisor** Víctor Núñez (thesis in Spanish; main supervisor R. Feick), “Corrección de Métricas Subóptimas en Decodificadores Iterativos,” Department of Electronics Engineering, UTFSM, Chile.
- 2008 **Co-Supervisor** Ying Gao and Jingjing Liu (main supervisor E. Agrell), “PDF estimation of the extrinsic information in turbo codes,” Department of Signals and Systems, Chalmers University of Technology, Gothenburg, Sweden.
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AWARDS

- 2018 **2015 JLT Best Paper Award**, honoring the most influential, highest-cited original paper published in the Journal of Lightwave Technology in 2015, with our paper “Replacing the Soft-Decision FEC Limit Paradigm in the Design of Optical Communication Systems”.
- 2015 **Exemplary Reviewer Award 2015**, awarded by the Editorial Board of the IEEE Transaction on Communications.
- 2013 **Best Poster Award** at the 2013 IEEE Communication Theory Workshop (CTW 2013), with the poster “On the Asymptotic Optimality of Gray Codes for BICM and One-Dimensional Constellations.”
- 2009 **Best Poster Award** at the 2009 IEEE Information Theory Workshop (ITW 2009), with the poster “On optimal constellations for BICM at low SNR.”
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TUTORIALS AND INVITED TALKS

- 2017 **On the Design of Coded Modulation for Fiber Optical Communications**, presented at the Signal Processing in Photonics Communications (SPPCom), New Orleans, LA, July 2017.
- 2017 **Designing Adaptive Coded Modulation for Optical Networks via Achievable Information Rates**, presented at the 19th International Conference on Transparent Optical Networks (ICTON), Girona, Spain, July 2017.
- 2017 **Information Rates and post-FEC BER Prediction in Optical Fiber Communications**, presented at the Optical Fiber Communication Conference and Exposition (OFC), Los Angeles, CA, Mar. 2017.

- 2016 *Tutorial: Beyond the pre-FEC BER Threshold: Mutual Information and Generalized Mutual Information*, presented at the 2016 IEEE Photonics Conference (IPC), Waikoloa Village, HI, Oct. 2016.
- 2016 **Adaptive Coded Modulation for Future Optical Networks**, presented at the 2016 OSA Latin America Optics & Photonics Conference (LAOP), Medellin, Colombia, Aug. 2016.
- 2015 **Optical communication systems with soft-decision FEC: Replacing the FEC limit paradigm**, presented at the Royal Society meeting “Communication networks beyond the capacity crunch—further discussion”, Kavli Royal Society International Centre, Chicheley Hall, UK.
- 2015 **Coding and Modulation for Optical Communication Systems**, presented at the 2015 Canadian Workshop on Information Theory, St. John’s, Canada, July 2015.
- 2014 **On soft FEC for optical channels: Is the “FEC limit” a good predictor of post-FEC BER?**, presented at the Munich Workshop on Information Theory of Optical Fiber, Institute for Communications Engineering, Technische Universität München, Germany, Dec. 2014.
- 2012 **Wireless Communications: A technology we can no longer live without**, presented at the “McMenemy Seminars,” Trinity Hall, University of Cambridge, UK, May 2012.
- 2010-2012 *Tutorial: Bit-Interleaved Coded Modulation: Fundamentals, Analysis, and Design*, presented at the IEEE International Conference on Communication Systems 2010, Singapore, Nov. 2010, at the 24th Annual Canadian Conference on Electrical and Computer Engineering, Niagara Falls, Ontario, Canada, May 2011, and at the European Wireless Conference, Poznań, Poland, April 2012.
- 2011 **On the BICM Capacity in the High SNR Regime**, presented at the Wireless Communications Symposium 2011, UTFSM, Valparaíso, Chile, Dec. 2011.
- 2010 **UEP in BICM: Interleaver and code design**, presented at the Fifth IEEE Workshop on Advanced Information Processing for Wireless Communication Systems, Nokia Denmark, Copenhagen, Denmark, Oct. 2010.
- 2010 **Towards a fully optimized BICM-ID using Multiple Interleavers**, presented at the Newcom++ 2010 Winter School on Iterative Techniques in Wireless Communications, Aalborg, Denmark, Feb. 2010.

SERVICE AND MEMBERSHIPS

- **Associate Editor** (2016-Present), IEEE Transactions on Communications (Optical Coded Modulation and Information Theory).
- **IEEE Senior Member** since 2015.
- **TPC Member**: 2017-2020 Optical Fiber Communication Conference and Exposition (OFC), 2013–2015 IEEE Global Communications Conference (GLOBECOM), 2015 European Conference on Network and Optical Communications (NOC2015), IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) 2012, and International Symposium on Turbo Codes & Iterative Information Processing 2016 and 2018.
- **Publicity Co-Chair**: 2016 International Conference on Advanced Communication Systems and Information Security (ACOSIS), 2014 IEEE Communication Theory Workshop (CTW2014).

PUBLICATIONS

Summary: More than 100 peer-reviewed journal and conference papers and one book (John Wiley & Sons). Current h-index is 20 and i10-index is 44.

Books

- [B1] L. Szczecinski and *A. Alvarado*, “Bit-Interleaved Coded Modulation: Fundamentals, Analysis, and Design,” John Wiley & Sons, Jan. 2015, 320 pages, ISBN: 978-0-470-68617-1.
DOI: [10.1002/9781118694077](https://doi.org/10.1002/9781118694077)

Peer-reviewed Journal Articles

- [J43] N. A. Shevchenko, S. A. Derevyanko, J. E. Prilepsky, *A. Alvarado*, P. Bayvel, and S. K. Turitsyn, “Capacity Lower Bounds of the Noncentral Chi-Channel with Applications to Soliton Amplitude Modulation,” *IEEE Trans. Commun.*, 2018 (to appear).
arXiv: [1609.02318](https://arxiv.org/abs/1609.02318)
- [J42] *A. Alvarado*, T. Fehenberger, B. Chen, and F.M.J. Willems, “Achievable Information Rates for Fiber Optics: Applications and Computations,” *J. Lightw. Technol.*, vol. 36, no. 2, pp. 424–439, Jan. 2018, *Invited Paper*.
DOI: [10.1109/JLT.2017.2786351](https://doi.org/10.1109/JLT.2017.2786351)
- [J41] *A. Alvarado*, F. Brännström, and E. Agrell, “Asymptotic Comparison of ML and MAP Detectors for Multidimensional Constellations,” *IEEE Trans. Inf. Theory*, vol. 64, no. 2, pp. 1231–1240, Feb. 2018.
DOI: [10.1109/TIT.2017.2727521](https://doi.org/10.1109/TIT.2017.2727521)
- [J40] D. J. Ives, *A. Alvarado*, and S. J. Savory, “Throughput gains from Adaptive Transceivers in Nonlinear Elastic Optical Networks,” *J. Lightw. Technol.*, vol. 35, no. 6, pp. 1280–1289, March 2017, *Invited Paper*.
DOI: [10.1109/JLT.2017.2674308](https://doi.org/10.1109/JLT.2017.2674308)
- [J39] T. Xu, N. A. Shevchenko, D. Lavery, D. Semrau, G. Liga, *A. Alvarado*, R. I. Killey, and P. Bayvel, “Modulation format dependence of digital nonlinearity compensation performance in optical fibre communication systems,” *Opt. Express*, vol. 25, no. 4, pp. 3311–3326, Feb. 2017.
DOI: [10.1364/OE.25.003311](https://doi.org/10.1364/OE.25.003311)
- [J38] L. Schmalen, *A. Alvarado*, and R. Rios-Müller, “Performance Prediction of Nonbinary Forward Error Correction in Optical Transmission Experiments,” *J. Lightw. Technol.*, vol. 35, no. 4, pp. 1015–1026, Feb. 2017, *Invited Paper*.
DOI: [10.1109/JLT.2016.2609932](https://doi.org/10.1109/JLT.2016.2609932)
- [J37] G. Liga, *A. Alvarado*, E. Agrell, and P. Bayvel, “Information Rates of Next-Generation Long-Haul Optical Fiber Systems Using Coded Modulation,” *J. Lightw. Technol.*, vol. 35, no. 1, pp. 113–123, Jan. 2017.
DOI: [10.1109/JLT.2016.2603419](https://doi.org/10.1109/JLT.2016.2603419)
- [J36] D. Semrau, T. Xu, N. A. Shevchenko, M. Paskov, *A. Alvarado*, R. I. Killey, and P. Bayvel, “Achievable Information Rates Estimation in Optically-amplified Transmission Systems using Nonlinearity Compensation and Probabilistic Shaping,” *Optics Letters*, vol. 42, no. 1, pp. 121–124, Jan. 2017.
DOI: [10.1364/OL.42.000121](https://doi.org/10.1364/OL.42.000121)
- [J35] Eric Sillekens, *A. Alvarado*, Chigo M. Okonkwo, and Benn C. Thomsen, “An Experimental Comparison of Coded Modulation Strategies for 100 Gbit/s Transceivers,” *J. Lightw. Technol.*, vol. 34, no. 24, pp. 5689–5697, Dec. 2016.
DOI: [10.1109/JLT.2016.2628101](https://doi.org/10.1109/JLT.2016.2628101)
- [J34] T. Fehenberger, *A. Alvarado*, G. Böcherer, and N. Hanik, “On Probabilistic Shaping of Quadrature Amplitude Modulation for the Nonlinear Fiber Channel,” *J. Lightw. Technol.*, vol. 34, no. 21, pp. 5063–5073, Nov. 2016.
DOI: [10.1109/JLT.2016.2594271](https://doi.org/10.1109/JLT.2016.2594271)
- [J33] D. Lavery, D. Ives, G. Liga, *A. Alvarado*, S. J. Savory, and P. Bayvel, “The Benefit of Split Nonlinearity Compensation for Optical Fiber Communications,” *IEEE Photon. Technol. Lett.*, vol. 28, no. 17, pp. 1803–1806, Sep. 2016.
DOI: [10.1109/LPT.2016.2572359](https://doi.org/10.1109/LPT.2016.2572359)
- [J32] M. Ivanov, C. Häger, F. Brännström, A. Graell i Amat, *A. Alvarado*, and E. Agrell, “On the Information Loss of the Max-Log Approximation in BICM Systems,” *IEEE Trans. Inf. Theory*, vol. 63, no. 6, pp. 3011–3025, June 2016.
DOI: [10.1109/TIT.2016.2543740](https://doi.org/10.1109/TIT.2016.2543740)
- [J31] L. Galdino, M. Tan, *A. Alvarado*, D. Lavery, P. Rosa, R. Maher, J. D. Ania-Castañón, P. Harper, S. Makovejs, B. C. Thomsen, and P. Bayvel, “Amplification Schemes and Multi-Channel DBP for Unrepeated Transmission,” *J. Lightw. Technol.*, vol. 34, no. 9, pp. 2221–2227, May 2016.
DOI: [10.1109/JLT.2016.2521002](https://doi.org/10.1109/JLT.2016.2521002)
- [J30] *A. Alvarado*, D. J. Ives, S. J. Savory and P. Bayvel, “On the Impact of Optimal Modulation and FEC Overhead on Future Optical Networks,” *J. Lightw. Technol.*, vol. 34, no. 9, pp. 2339–2352, May 2016.
DOI: [10.1109/JLT.2016.2517699](https://doi.org/10.1109/JLT.2016.2517699)
- [J29] T. Fehenberger, D. Lavery, R. Maher, *A. Alvarado*, P. Bayvel, and N. Hanik, “Sensitivity Gains by Mismatched Probabilistic Shaping for Optical Communication Systems,” *IEEE Photon. Technol. Lett.*, vol. 28, no. 7, pp. 786–789, Apr. 2016.
DOI: [10.1109/LPT.2015.2514078](https://doi.org/10.1109/LPT.2015.2514078)
- [J28] D. S. Millar, R. Maher, D. Lavery, T. Koike-Akino, M. Pajovic, *A. Alvarado*, M. Paskov, K. Kojima, K. Parsons, B. Thomsen, S. J. Savory, and P. Bayvel, “Design of a 1 Tb/s Superchannel Coherent Receiver,” *J. Lightw. Technol.*, vol. 34, no. 6, pp. 1453–1463, Mar. 2016, *Invited Paper*.
DOI: [10.1109/JLT.2016.2519260](https://doi.org/10.1109/JLT.2016.2519260)
- [J27] R. Maher, *A. Alvarado*, D. Lavery and P. Bayvel, “Increasing the Information Rates of Optical Communications via Coded Modulation: A Study of Transceiver Performance,” *Scientific Reports*, Scientific Reports 6, 21278, Feb. 2016.
DOI: [10.1038/srep21278](https://doi.org/10.1038/srep21278)
- [J26] P. Bayvel, R. Maher, T. Xu, G. Liga, N. Shevchenko, D. Lavery, *A. Alvarado*, and R. I. Killey, “Maximising the optical network capacity,” Philosophical Transactions of the Royal Society A, *Invited Paper* for the Royal Society meeting “Communication networks beyond the capacity crunch,” Feb. 2016.
DOI: [10.1098/rsta.2014.0440](https://doi.org/10.1098/rsta.2014.0440)

- [J25] E. Agrell, *A. Alvarado*, and F. R. Kschischang, "Implications of information theory in optical fibre communications," *Philosophical Transactions of the Royal Society A, Invited Paper* for the Royal Society meeting "Communication networks beyond the capacity crunch," Feb. 2016.
DOI: [10.1098/rsta.2014.0438](https://doi.org/10.1098/rsta.2014.0438)
- [J24] *A. Alvarado*, E. Agrell, D. Lavery, R. Maher, and P. Bayvel, "Corrections to 'Replacing the Soft-decision FEC Limit Paradigm in the Design of Optical Communication Systems'," *J. Lightw. Technol.* vol. 34, no. 2, p. 722, Jan. 2016.
DOI: [10.1109/JLT.2015.2505671](https://doi.org/10.1109/JLT.2015.2505671)
- [J23] *A. Alvarado*, E. Agrell, D. Lavery, R. Maher, and P. Bayvel, "Replacing the Soft-decision FEC Limit Paradigm in the Design of Optical Communication Systems", *J. Lightw. Technol.*, vol. 30, no. 20, pp. 4338–4352, Oct. 2015, *Invited Paper*.
DOI: [10.1109/JLT.2015.2450537](https://doi.org/10.1109/JLT.2015.2450537)
- [J22] *A. Alvarado*, and E. Agrell, "Four-Dimensional Coded Modulation with Bit-wise Decoders for Future Optical Communications," *J. Lightw. Technol.*, vol. 33, no. 10, pp. 1993–2003, May 2015.
DOI: [10.1109/JLT.2015.2396118](https://doi.org/10.1109/JLT.2015.2396118)
- [J21] T. Fehenberger, *A. Alvarado*, P. Bayvel, and N. Hanik, "On Achievable Rates for Long-Haul Fiber-Optic Communications," *Opt. Express*, vol. 23, no. 7, pp. 9183–9191, Apr. 2015.
DOI: [10.1364/OE.23.009183](https://doi.org/10.1364/OE.23.009183)
- [J20] C. Häger, A. Graell i Amat, F. Brännström, *A. Alvarado*, and E. Agrell, "Terminated and Tailbiting Spatially-Coupled Codes with Optimized Bit Mappings for Spectrally Efficient Fiber-Optical Systems," *J. Lightw. Technol.*, vol. 33, no. 7, pp. 1275–1285, Apr. 2015, *Invited Paper*.
DOI: [10.1109/JLT.2015.2390596](https://doi.org/10.1109/JLT.2015.2390596)
- [J19] R. Maher, T. Xu, L. Galdino, M. Sato, *A. Alvarado*, K. Shi, S. J. Savory, B. C. Thomsen, R. I. Killely and P. Bayvel, "Spectrally Shaped DP-16QAM Super-Channel Transmission with Multi-Channel Digital Back Propagation," *Scientific Reports* 5, 8214, 2015.
DOI: [10.1038/SREP08214](https://doi.org/10.1038/SREP08214)
- [J18] G. Liga, T. Xu, *A. Alvarado*, R. I. Killely, and P. Bayvel, "On the Performance of Multichannel Digital Backpropagation in High-capacity Long-haul Optical Transmission," *Opt. Express*, vol. 22, no. 24, pp. 30053–30062, Nov. 2014.
DOI: [10.1364/OE.22.030053](https://doi.org/10.1364/OE.22.030053)
- [J17] E. Agrell, *A. Alvarado*, G. Durisi, and M. Karlsson, "Capacity of a Nonlinear Optical Channel with Finite Memory," *J. Lightw. Technol.*, vol. 32, no. 16, pp. 2862–2876, Aug. 2014, *Invited Paper*.
DOI: [10.1109/JLT.2014.2328518](https://doi.org/10.1109/JLT.2014.2328518)
- [J16] C. Häger, A. Graell i Amat, F. Brännström, *A. Alvarado*, and E. Agrell, "Improving Soft FEC Performance for Higher-Order Modulations by Bit Mapper Optimization," *Opt. Express*, vol. 22, no. 12, pp. 14544–14558, June 2014.
DOI: [10.1364/OE.22.014544](https://doi.org/10.1364/OE.22.014544)
- [J15] M. Ivanov, *A. Alvarado*, F. Brännström, and E. Agrell, "On the Asymptotic Performance of Bit-Wise Decoders for Coded Modulation," *IEEE Trans. Inf. Theory*, vol. 60, no. 5, pp. 2796–2804, May 2014.
DOI: [10.1109/TIT.2014.2312726](https://doi.org/10.1109/TIT.2014.2312726)
- [J14] *A. Alvarado*, F. Brännström, and E. Agrell, "A Simple Approximation for the Bit-interleaved Coded Modulation Capacity," *IEEE Commun. Letters*, vol. 18, no. 3, pp. 495–498, March 2014.
DOI: [10.1109/LCOMM.2014.011314.132633](https://doi.org/10.1109/LCOMM.2014.011314.132633)
- [J13] *A. Alvarado*, F. Brännström, E. Agrell, and T. Koch, "High-SNR Asymptotics of Mutual Information for Discrete Constellations with Applications to BICM," *IEEE Trans. Inf. Theory*, vol. 60, no. 2, pp. 1061–1076, Feb. 2014.
DOI: [10.1109/TIT.2013.2291865](https://doi.org/10.1109/TIT.2013.2291865)
- [J12] C. Häger, A. Graell i Amat, *A. Alvarado*, and E. Agrell, "Design of APSK Constellations for Coherent Optical Channels with Nonlinear Phase Noise," *IEEE Trans. Commun.*, vol. 61, no. 8, pp. 3362–3373, Aug. 2013.
DOI: [10.1109/TCOMM.2013.061913.120713](https://doi.org/10.1109/TCOMM.2013.061913.120713)
- [J11] *A. Alvarado*, A. Graell i Amat, F. Brännström, and E. Agrell, "On Optimal TCM Encoders," *IEEE Trans. Commun.*, vol. 61, no. 6, pp. 2178–2189, June 2013.
DOI: [10.1109/TCOMM.2013.042313.120760](https://doi.org/10.1109/TCOMM.2013.042313.120760)
- [J10] M. Ivanov, F. Brännström, *A. Alvarado*, and E. Agrell, "On the Exact BER of Bit-Wise Demodulators for One-Dimensional Constellations," *IEEE Trans. Commun.*, vol. 61, no. 4, pp. 1450–1459, Apr. 2013.
DOI: [10.1109/TCOMM.2013.13.120401](https://doi.org/10.1109/TCOMM.2013.13.120401)
- [J9] E. Agrell and *A. Alvarado*, "Signal Shaping for BICM at Low SNR," *IEEE Trans. Inf. Theory*, vol. 59, no. 4, pp. 2396–2410, Apr. 2013.
DOI: [10.1109/TIT.2012.2231900](https://doi.org/10.1109/TIT.2012.2231900)
- [J8] Md. J. Hossain, *A. Alvarado*, and L. Szczecinski, "Towards Fully Optimized BICM Transceivers," *IEEE Trans. Commun.*, vol. 59, no. 11, pp. 3027–3039, Nov. 2011.
DOI: [10.1109/TCOMM.2011.091411.100746](https://doi.org/10.1109/TCOMM.2011.091411.100746)
- [J7] *A. Alvarado*, L. Szczecinski, and Erik Agrell, "On BICM Receivers for TCM Transmission," *IEEE Trans. Commun.*, vol. 59, no. 10, pp. 2692–2702, Oct. 2011.
DOI: [10.1109/TCOMM.2011.091411.100505](https://doi.org/10.1109/TCOMM.2011.091411.100505)
- [J6] E. Agrell and *A. Alvarado*, "Optimal alphabets and Binary Labelings for BICM at low SNR," *IEEE Trans. Inf. Theory*, vol. 57, no. 10, pp. 6650–6672, Oct. 2011.
DOI: [10.1109/TIT.2011.2162179](https://doi.org/10.1109/TIT.2011.2162179)
- [J5] *A. Alvarado*, E. Agrell, A. Guillén i Fàbregas, and A. Martínez, "Corrections to 'Bit-interleaved coded modulation in the wideband regime'," *IEEE Trans. Inf. Theory*, vol. 56, no. 12, p. 6513, Dec. 2010.
DOI: [10.1109/TIT.2010.2086177](https://doi.org/10.1109/TIT.2010.2086177)
- [J4] *A. Alvarado*, L. Szczecinski, E. Agrell, and A. Svensson, "On BICM-ID with Multiple Interleavers," *IEEE Commun. Letters*, vol. 14, no. 9, pp. 785–787, Sep. 2010.
DOI: [10.1109/LCOMM.2010.072910.101005](https://doi.org/10.1109/LCOMM.2010.072910.101005)

- [J3] *A. Alvarado*, E. Agrell, L. Szczecinski, and A. Svensson, "Exploiting UEP in QAM-based BICM: Interleaver and Code Design," *IEEE Trans. Commun.*, vol. 58, no. 2, pp. 500–510, Feb. 2010.
DOI: [10.1109/TCOMM.2010.02.080525](https://doi.org/10.1109/TCOMM.2010.02.080525)
- [J2] L. Szczecinski, *A. Alvarado*, and R. Feick, "Distribution of Max-log Metrics for QAM-based BICM in Fading Channels," *IEEE Trans. Commun.*, vol. 57, no. 9, pp. 2558–2563, Sep. 2009.
DOI: [10.1109/TCOMM.2009.09.070567](https://doi.org/10.1109/TCOMM.2009.09.070567)
- [J1] *A. Alvarado*, L. Szczecinski, R. Feick, and L. Ahumada, "Distribution of L-values in Gray-mapped M^2 -QAM: Closed-form Approximations and Applications," *IEEE Trans. Commun.*, vol. 57, no. 7, pp. 2071–2079, July 2009.
DOI: [10.1109/TCOMM.2009.07.070506](https://doi.org/10.1109/TCOMM.2009.07.070506)

Invited Conference Articles



- [I12] *A. Alvarado*, G. Liga, T. Fehenberger, and L. Schmalen, "On the Design of Coded Modulation for Fiber Optical Communications," *Signal Processing in Photonics Communications (SPPCom)*, New Orleans, LA, July 2017.
DOI: [10.1364/SPPCOM.2017.SpM4F.2](https://doi.org/10.1364/SPPCOM.2017.SpM4F.2)
- [I11] *A. Alvarado*, D. J. Ives, and S. J. Savory, "Designing Adaptive Coded Modulation for Optical Networks via Achievable Information Rates," *19th International Conference on Transparent Optical Networks (ICTON)*, Girona, Spain, July 2017.
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