
CURRICULUM VITAE

AMINA PIEMONTESE

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Present employment

Assistant Professor (RTDb)

Department of Engineering and Architecture
University of Parma
Parma, Italy
Appointment June 1, 2020.

TITOLI:

a) dottorato di ricerca o equipollente conseguito in Italia o all'estero

2011-03-28: **PhD in Information Technology**, University of Parma, Parma, Italy.

Dissertation title: “Advanced low-complexity multiuser receivers”.

Advisor: Prof. Giulio Colavolpe.

Part of the PhD (09/2009–12/2010) was pursued at TELECOM Bretagne (former ENST Bretagne), Brest, France, and at Turbo Concept, Brest, France.

b) attività didattica a livello universitario in Italia o all'estero:

- **Lecturer/Examiner** in the course “Internet e Multimedia” 2020/2021 (9 Credits), at the University of Parma.

From 2020-09-01 to today

- **Lecturer/Examiner** in the course “Network Information Theory” 2020/2021 (3 Credits), at the University of Parma.

From 2020-09-01 to today

- **Teaching Assistant** in the course “Communication Systems” 2016/2017 LP3 (38 students, 7.5 Credits, Course evaluation: overall impression of the course 4.35/5), at Chalmers University of Technology, Sweden. Examiner: Prof. Erik Ström.

From 2017-01-01 to 2017-08-31

- **Teaching Assistant** in the course “Communication Systems” 2015/2016 LP3 (44 students, 7.5 Credits, Course evaluation: overall impression of the course 4.57/5), at Chalmers University of Technology, Sweden. Examiner: Prof. Erik Ström.

From 2016-01-01 to 2016-08-31

- **Lectures** on advanced topics during the academic years 2009, 2011, and 2012 as part of the course of “Digital Communications” at the Faculty of Engineering, University of Parma, Italy.

Examiner: Prof. Giulio Colavolpe.

- **Doctoral students supervised**

As a post-doctoral researcher at the University of Parma, I have been involved in the co-supervision of the following PhD thesis:

- “Physical and MAC layer techniques for next generation satellite communications.” Student: Alessandro Ugolini. PhD Thesis defense: March 2016.

- “Advanced transceivers for spectrally-efficient communications.” Student: Andrea Modenini. PhD Thesis defense: March 2014.

- “Spectrally efficient systems for satellite communications.” Student: Nicolás Mazzali. PhD Thesis defense: March 2013.

- **Research master students supervised**

At the University of Parma, I supervised the following MSc thesis:

- “Novel detection algorithms for channels impaired by phase noise.” Student: Elisa Conti. MSc Thesis defense: October 2021.

At Chalmers, I co-supervised the following MSc thesis:

- “Interference Coordination in Return-Link Multi-Beam Satellite Systems.” Student: Tito Ilyasa.

At TELECOM Bretagne, I co-supervised the following MSc thesis:

- “Dirty paper coding for satellite broadcast channels.” Student: Mohamad Maaz. MSc Thesis defense: June 2010.

c) attività di formazione o di ricerca presso qualificati istituti italiani o stranieri:

- **MSs student in Telecommunication Engineering**, University of Parma, Italy.

Dissertation title: “Ricevitori per canali con fading piatto basati su modelli ARMA” (in Italian).
MSc Thesis defense: April 2006

- **Research assistant** at the Department of Information Engineering (now Department of Engineering and Architecture), University of Parma, Parma, Italy.

Research on precoder optimization for continuous phase modulations and on graph-based soft channel estimation for fading channels.

From 2006-09-01 to 2007-12-31

- **PhD Student** at the Department of Information Engineering (now Department of Engineering and Architecture), University of Parma, Italy and at the Department of Electronics, TELECOM Bretagne, Brest, France.

Research on multiuser detection algorithms for continuous phase modulations, and on low complexity, graph-based iterative receivers.

From 2008-01-01 to 2010-12-31

- Part-time **research consultant** at Turbo Concept (a Newtec company qualified in error correcting schemes for a large range of telecommunication applications), Brest, France.

I investigated some synchronization issues and practical aspects of multiuser detection algorithms for continuous phase modulations, developed during the first part of my PhD.

From 2009-09-01 to 2010-12-31

- **Postdoctoral Research Associate**, Department of Information Engineering (now Department of Engineering and Architecture), University of Parma, Parma, Italy.

Research on detection algorithms for nonlinear satellite channels and on Faster-than-Nyquist signalling.

From 2011-07-01 to 2015-04-30

- **Postdoctoral Researcher**, Department of Electrical Engineering, Chalmers University of Technology, Gothenburg, Sweden.

Research on coding for distributed caching, performance bounds for phase noise channels, and efficient design of digital modulations for nonlinear and phase noise channels.

From 2015-05-01 to 2020-05-31

e) realizzazione di attività progettuale:

- Since the beginning of my career, I have been working on **satellite communications**, gaining a deep knowledge about detection for satellite systems. As part of the SPADiCLab, a research group at the University of Parma led by Prof. Giulio Colavolpe, I have been involved in several research projects in the area of satellite-based communications, funded by the European Space Agency. The participation in these projects allowed me to acquire leadership and supervision skills. In particular, I demonstrated my leadership skills by being WP leader in two of them and I supervised the work of the involved PhD students. In the following I describe my contribution to the research projects funded by the European Space Agency.

- **Co-investigator** of the project “BSDT: Broadband Satellite Digital Transmission, Study of Enhanced Digital Transmission Techniques for Broadband Satellite Digital Transmissions”, funded by the European Space Agency, with Contract No. 19370. Responsible for the University of Parma: Prof. Giulio Colavolpe. My contribution was in the design of Markov precoders to improve the spectral efficiency of some selected continuous phase modulation schemes and is reported in the following technical reports and conference paper:

[a] A. Barbieri, A. Cero, G. Colavolpe, D. Fertoni, and A. Piemontese, “BSDT — Technical note TN20: CPM schemes for high spectral efficiencies,” tech. rep., Jan. 2009.

[b] A. Barbieri, A. Cero, G. Colavolpe, D. Fertoni, and A. Piemontese, “BSDT — Technical note TN14: Shaper-precoder optimization from a capacity point of view for CPM signals,” tech. rep., June 2007.

[c] A. Barbieri, A. Cero, G. Colavolpe, D. Fertoni, and A. Piemontese, “BSDT — Technical note TN05: Reduced-complexity CPM detector,” tech. rep., June 2007.

[d] A. Barbieri, A. Cero, A. Piemontese, and G. Colavolpe, “Markov capacity of continuous phase modulations,” in Proc. IEEE Int. Symp. on Inf. Theory, pp. 161–165, (Nice, France), June 2007.

From 2007-01-01 to 2009-01-01

• **Co-investigator** of the project “Enhanced Digital Modem Techniques Development and Validation”, funded by the European Space Agency, with Contract No. 4000102300. Responsible for the University of Parma: Prof. Giulio Colavolpe. Within this project, the SPADiC group investigated some innovative techniques to improve the spectral efficiency of DVB-S2 systems. I was a **WP leader**. My contribution led to the design of novel SISO detection algorithms for nonlinear satellite channels [a] [b]. Within this project, the application of time-frequency packing to nonlinear satellite systems was deeply analyzed [c] [d]. This study and the novel detection algorithms are part of the international patent [e]. The time-frequency packing paradigm was also applied to coherent optical links [f].

[a] G. Colavolpe and A. Piemontese, “Novel SISO detection algorithms for nonlinear satellite channels,” IEEE Wireless Commun. Letters, vol. 1, pp. 22–25, Feb. 2012.

[b] G. Colavolpe and A. Piemontese, “Novel SISO detection algorithms for nonlinear satellite channels,” in Proc. IEEE Global Telecommun. Conf., pp. 1–5, Dec. 2011.

[c] A. Piemontese, A. Modenini, G. Colavolpe, and N. Alagha, “Improving the spectral efficiency of nonlinear satellite systems through time-frequency packing and advanced processing,” IEEE Trans. Commun., vol. 61, pp. 3404–3412, Aug. 2013.

[d] G. Colavolpe, A. Modenini, A. Piemontese, and N. Alagha, “Spectral efficiency of time-frequency-packed nonlinear satellite systems,” in Proc. of 31st AIAA Int. Commun. Satellite Systems Conf., Oct. 2013.

[e] G. Colavolpe, A. Modenini, A. Piemontese, and N. Alagha, “Data detection method and data detector for signals transmitted over a communication channel with inter-symbol interference,” Dec. 2012. Int. patent application n. F027800186/WO/PCT.

[f] G. Colavolpe, T. Foggi, A. Modenini, and A. Piemontese, “Faster-than-Nyquist and beyond: how to improve spectral efficiency by accepting interference,” Opt. Express, vol. 19, pp. 26600–26609, Dec. 2011.

From 2010-01-01 to 2011-12-31

• **Co-investigator** of the project “Next generation waveforms for improved spectral efficiency”, funded by the European Space Agency, with Contract No. 4000106528. Responsible for the University of Parma: Prof. Giulio Colavolpe. Within this project, the SPADiC group investigated innovative waveforms able to improve the spectral efficiency of satellite communications for broadband and broadcasting applications. I was a **WP leader**. I worked on the performance analysis of multiuser detection at the user terminal of a multi-beam satellite system with high frequency reuse [a,b].

[a] S. Andrenacci, M. Angelone, E. A. Candreva, G. Colavolpe, A. Ginesi, F. Lombardo, A. Modenini, C. Morel, A. Piemontese, and A. Vanelli-Coralli, “Physical layer performance of multi-user detection in broadband multibeam systems based on DVB-S2,” in Proc. of 20th European Wireless Conf., pp. 1–5, May 2014.

[b] G. Colavolpe, N. Mazzali, A. Modenini, and A. Piemontese, “Next generation waveforms for improved spectral efficiency,” tech. rep., July 2013. ESA Contract No. 4000106528.

From 2012-01-01 to 2014-12-31

- **Co-investigator** of the project “Interference Management Techniques for Satellite Networks”, funded by the European Space Agency, with Contract No. 4000109715. Responsible for the University of Parma: Prof. Giulio Colavolpe. Within this project, the SPADiC group considered the use of multiple co-located satellites to improve the spectral efficiency of broadcast transmissions [a-c]. I extended a known bound on the channel capacity for nonlinear channels to the considered scenario.

[a] A. Modenini, A. Ugolini, A. Piemontese, and G. Colavolpe, “On the use of multiple satellites to improve the spectral efficiency of broadcast transmissions,” *IEEE Trans. on Broadcasting*, vol. 61, pp. 590-602, Dec. 2015.

[b] A. Ugolini, A. Piemontese, A. Modenini, and G. Colavolpe, “On the use of multiple satellites to improve the spectral efficiency of broadcast transmissions,” in *Proc. 7th Advanced Satellite Mobile Systems Conf. and 13th Int. Workshop on Signal Processing for Space Commun.*, Sep. 2014.

[c] G. Taricco, G. Colavolpe, A. Modenini, and A. Piemontese, and A. Ugolini “Interference Management Techniques for Satellite Networks,” tech. rep., Dec. 2015. ESA Contract No. 4000109715.

From 2013-01-01 to 2015-12-31

- **Principal investigator** for the research project “Distributed storage based on sparse-graph codes”, supported by a **Marie Skłodowska-Curie Individual Fellowship** by the European Commission (amount €185,857.20). The focus of the project was on erasure-correcting coding for data storage (e.g., in data centers) and efficient wireless content delivery. My main contributions to the field are collected in the following papers

[a] A. Piemontese and A. Graell i Amat, “MDS-coded distributed caching for low delay wireless content delivery,” *IEEE Trans. Commun.*, vol. 67, no. 2, pp. 1600-1612, Feb. 2019.

[b] A. Piemontese, and A. Graell i Amat, “MDS-coded distributed storage for low delay wireless content delivery,” in *Proc. Int. Symp. on Turbo Codes & Iterative Information Processing*, pp. 320–324, Sep. 2016.

In these works, I considered the use of maximum distance separable (MDS) codes to enable efficient content delivery in wireless cellular networks. Content is stored in a distributed fashion in a number of the mobile devices and can be retrieved from them using device-to-device communication or, alternatively, from the base station. I derived an analytical expression for the download delay, and showed that MDS-coded distributed storage can dramatically reduce the download time with respect to the reference scenario where content is downloaded from the base station.

From 2015-05-01 to 2017-05-31

- **Co-investigator** for the project “Chalmers phase noise Impact Investigation”. Funding: Ruag Space AB. Responsible for the project: Professor Thomas Eriksson. The results of the project are collected in the following technical reports:

[a] T. Eriksson, and A. Piemontese, “WSLO, Chalmers Phase Noise Impact Investigation-Technical note: Phase Noise Impact Study with Minimal RF chain,” tech. rep., May 2017. RUAG Space AB Contract

[b] T. Eriksson, and A. Piemontese, “WSLO, Chalmers PN Impact Investigation-Technical Note: Phase Noise Impact Study Realistic RF chain,” tech. rep., Feb. 2018. RUAG Space AB Contract

From 2017-01-01 to 2018-10-01

- **Co-investigator** for the project “DYNASAT - Dynamic spectrum sharing and bandwidth-efficient techniques for high-throughput MIMO Satellite systems” funded by the European Commission under the program Horizon 2020. I am the **leader** of the **WP** whose goal is the investigation of bandwidth efficient techniques design and evaluation for an advanced LEO-megaconstellation based satellite access infrastructure providing 5G and Beyond 5G services to handset devices in areas beyond cellular coverage.

From December 2020 to today

f) organizzazione, direzione e coordinamento di gruppi di ricerca nazionali e internazionali, o partecipazione agli stessi:

- Research Fellow at the Department of Information Engineering (now Department of Engineering and Architecture), University of Parma, Italy. In particular, I am **member of the Signal Processing for Advanced Digital Communications (SPADiC)** research group, led by Prof. Giulio Colavolpe.

The research of the SPADiC group spans a wide range of subjects: it has been historically focused on synchronization and detection theory, but it has also expanded towards information theory. The SPADiC group was involved in several research projects funded by MIUR, CNR, ESA (the European Space Agency), ASI (the Italian Space Agency), CNIT, and in several collaborations with industrial partners (Siemens Information and Communications, Ericsson, Newtec Cy, Alcatel-Alenia Space, CGS SpA). The SPADiC group has also close academic links with several prestigious Universities: Eurécom (FR), Carnegie Mellon University (USA), University of Southern California (USA), University of Michigan, Lund University (Sweden), Chalmers University (Sweden), Centre Tecnologic de Telecomunicacions de Catalunya (Spain), Universidade de Vigo (Spain), Université du Luxembourg (Luxembourg).

As part of the SPADiC laboratory, I am involved in research projects funded by the MIUR and, in the area of satellite-based communications, in research projects funded by the European Space Agency, Newtec and the European Commission.

From 2006-01-01 to 2015-04-30 and from 2020-06-01 to today

- **Member of the Communication Systems group**, Electrical Engineering Department of Chalmers University of Technology, Gothenburg, Sweden. The group includes 8 Professors, 3 Postdocs, and 25 PhD students, most of them working in the areas of communications, information theory, and optimization theory.

The group is the largest research group in communications in Sweden, and one of the leading research groups in communications in Europe. Its reputation and international environment attracts the best students, academics, sponsors and partners from all over the world. The group itself is in fact a great international environment, since its members originate from 14 different countries (Sweden, Germany, Spain, Austria, Italy, Belgium, Romania, Russia, Iran, India, China, Vietnam, Mexico, and Peru). The Communication Systems group has extensive publications and an outstanding track record of funded projects, patents and international collaborations.

Within the group, I have active collaborations with Professor Graell i Amat, scientist in charge of the research project “Distributed storage based on sparse-graph codes” supported by the Marie Skłodowska-Curie Individual Fellowship that I obtained. Moreover, since May 2017, I collaborate with Professor Thomas Eriksson, leader of the area *Hardware-constrained communications* and with Professor Tommy Svensson, leader of the area *Wireless Systems*.

From 2015-05-01 to 2020-05-31

g) titolarità di brevetti:

- Author of the following **three patents**:

[a] G. Colavolpe, A. Piemontese (2010). Reduced complexity FDM-CPM detector with multiple access interference cancellation. WO/2010/149791, Newtec Cy, Belgium

[b] G. Colavolpe, A. Piemontese (2012). Reduced complexity FDM-CPM detector with multiple access interference cancellation. 20120098612, Newtec Cy, Belgium

[c] Giulio Colavolpe, Andrea Modenini, Amina Piemontese, Nader Alagha (2015). Data detection method and data detector for signals transmitted over a communication channel with inter-symbol interference. US9722691B2, ESA - European Space Agency

From 2010-01-01 to today

h) relatore a congressi e convegni nazionali e internazionali:

- **Invited talk**, 5th IEEE Workshop on Advanced Information Processing for Wireless Communication Systems, Nokia Denmark, Oct. 2010. Title: “Information-Theoretic Analysis of Spectrally Efficient FDM-CPM Systems”.

From 2010-10-14 to 2010-10-15

*Participation as **presenter**:

- Int. Symp. on Turbo Codes & Iterative Information Processing, (Brest, France), Sep. 2016. I presented the paper “MDS-coded distributed storage for low delay wireless content delivery.”
- IEEE Int. Work. on Signal Processing Advances for Wireless Commun., (Stockholm, Sweden), July 2015. I presented the paper “Multiuser detection in multibeam satellite systems: theoretical analysis and practical schemes,” *Invited paper*.
- IEEE Int. Conf. Commun., (Budapest, Hungary), June 2013. I presented the paper “Nonbinary spatially-coupled LDPC codes on the binary erasure channel.”
- IEEE Int. Conf. Commun. (Ottawa, Canada), June 2012. I presented the paper “Spectral efficiency of linear and continuous phase modulations over nonlinear satellite channels.”
- IEEE Global Telecommun. Conf. (Houston, TX, U.S.A.), Dec. 2011. I presented the paper “Novel SISO detection algorithms for nonlinear satellite channels.”
- Advanced Satellite Mobile Systems Conf. and Int. Workshop on Signal Processing for Space Commun. (Cagliari, Italy), Sep. 2010. I presented the paper “Improving the spectral efficiency of FDM-CPM systems through packing and multiuser processing,” *Best paper award*.
- Int. Symp. on Turbo Codes & Iterative Information Processing (Brest, France), Sep. 2010. I presented the paper “Information-theoretic analysis and practical coding schemes for spectrally efficient FDM-CPM systems.”
- IEEE Int. Symp. Inf. Theory (Seoul, Korea), June 2009. I presented the paper “A novel graph-based soft interference cancellation algorithm for FDM-CPM satellite systems.”
- IEEE Int. Work. on Signal Processing Advances for Wireless Commun. (Perugia, Italy), June 2009. I presented the paper “Novel graph-based algorithms for interference cancellation in CDMA systems.”

From 2009-06-01 to 2016-09-09

i) premi e riconoscimenti nazionali e internazionali per attività di ricerca:

- **National Scientific Qualification as an Associate Professor** by the Italian Ministry for the University and Scientific Research.

From 2018-07-30 to 2024-07-30

- **Marie Skłodowska-Curie Individual Fellowship**, by the European Commission, for the research project “Distributed storage based on sparse-graph codes” (2 years, extension of 1 month for parental leave).

From 2015-05-01 to 2017-05-31

- Five papers evaluated as “**Excellent**” in the Italian Valutazione della Qualità della Ricerca (**VQR**, evaluation of the research quality) for the periods 2004–2010 and 2010–2014.

From 2009-01-01 to today

- **IEEE Membership**

From 2009-03-01 to 2016-12-31

- **IEEE Information Theory Society Membership**

From 2009-03-01 to 2010-12-31

- **Best paper award**, 5th Advanced Satellite Mobile Systems Conference and 11th International Workshop on Signal Processing for Space Communications (ASMS&SPSC 2010), Cagliari, Italy, Sep. 2010.

- **Best paper award**, Phy and fundamentals track, IEEE Wireless Communications and Networking Conference (WCNC), Marrakesh, Morocco, April 2019.

- **IEEE Communications Society Membership**

From 2011-03-01 to 2013-12-31

• **One invited paper** in one international journal:

-A. Piemontese, N. Mazzali, and G. Colavolpe, “Improving the spectral efficiency of FDM-CPM systems through packing and multiuser processing,” *International Journal of Satellite Communications and Networking*, vol. 30, pp. 62–72, Feb. 2012.

• **Three invited papers** in international conferences:

-A. Ugolini, A. Piemontese, A. Vanelli-Coralli, and G. Colavolpe, “Efficient Satellite Systems Based on Interference Management and Exploitation,” in *Proc. Asilomar Conference on Signals, Systems, and Computers*, pp. 492–496, (Pacific Grove, CA), Nov. 2016.

-G. Colavolpe, A. Modenini, A. Piemontese, and A. Ugolini, “Multiuser detection in multibeam satellite systems: theoretical analysis and practical schemes,” in *Proc. IEEE Int. Work. on Signal Processing Advances for Wireless Commun.*, pp. 525–529, (Stockholm, Sweden), July 2015.

-A. Graell i Amat, I. Andriyanova, and A. Piemontese, “Proving threshold saturation for nonbinary SC-LDPC codes on the binary erasure channel,” in *Proc. 31st URSI General Assembly and Scientific Symp.*, pp. 1–4, (Beijing, China), Aug. 2014.

From 2012-02-01 to today

• **Guest Researcher Grant**, by Chalmers University of Technology, Gothenburg, Sweden, for a 2-month research visit at the Department of Electrical Engineering. Host: Professor Graell i Amat.

The research visit led to two conference papers (one invited):

[a] A. Piemontese, A. Graell i Amat, and G. Colavolpe, “Nonbinary spatially-coupled LDPC codes on the binary erasure channel,” in *Proc. IEEE Int. Conf. Commun. (ICC)*, pp. 3270–3274, Budapest, Hungary, Jun. 2013.

[b] A. Graell i Amat, I. Andriyanova, and A. Piemontese, “Proving threshold saturation for nonbinary SC-LDPC codes on the binary erasure channel,” in *Proc. 31st URSI General Assembly and Scientific Symp.*, pp. 1–4, (Beijing, China), Aug. 2014. *Invited paper*

From 2012-04-14 to 2012-06-02

• **Ericsson Research Foundation Grant**, by Ericsson, Stockholm (amount 4000€), for a 4-month research visit at the Department of Engineering and Architecture of the University of Parma, Italy. The visit will take place from September 2019 to December 2019.

ALTRE TITOLI E INFORMAZIONI:

Scholarships

• 2011-2014: **Postdoctoral Research Fellowship**, by the Italian Ministry for the University and Scientific Research, within the FIRB project “Reti ottiche coerenti per canali al Terabit” (Coherent optical networks for terabit channels).

• 2008-2010: **PhD Fellowship**, by the Italian Ministry for the University and Scientific Research, and by Newtec Cy, Sint-Niklaas, Belgium, a satellite communications company.

• 2007: **1-year Scholarship** for graduate students (under competition), by the National Inter-University Consortium for the Telecommunications (CNIT), for the research project “Rete satellitare avanzata per servizi multimediali e di posizionamento (AMUSE)” (Advanced satellite networks for multimedia and positioning services).

• 2006: **11-months Scholarship** for graduate students (under competition), by the Italian Ministry for the University and Scientific Research, for the research project “Theoretical analysis of the performance of the coherent optical system”.

Technical program committees

• IEEE Global Communications Conference: Wireless Communications, Globecom 2021 WC, Madrid, Spain, December 2021.

• European Conference on Networks and Communications, EuCNC, Oulu, Finland, June 2017.

- European Conference on Networks and Communications, EuCNC, Athens, Greece, June 2016.
- Advanced Satellite Mobile Systems Conference and International Workshop on Signal Processing for Space Communications, ASMS/SPSC, Livorno, Italy, September 2014.
- Future Networks and Mobile Summit 2013, Lisbon, Portugal, July 2013.
- IEEE Vehicular Technology Conference, VTC, Dresden, Germany, June 2013.
- Advanced Satellite Mobile Systems Conference and International Workshop on Signal Processing for Space Communications, ASMS/SPSC, Baiona, Spain, September 2012.
- IEEE Vehicular Technology Conference, VTC, Budapest, Hungary, May 2011.

Career Break in Research

2013: Maternity leave (5 months).

2016: Maternity leave (1 month).

2017-today: Maternity leave (10 months).

PUBBLICAZIONI SCIENTIFICHE

Peer reviewed journal publications

- [J1] A. Piemontese, G. Colavolpe, and T. Eriksson, “A New Measure-Driven Analytical Model of Phase Noise in Communication Systems” submitted to IEEE Trans. Commun., undergoing the second review round.
- [J2] A. Guidotti, S. Cioni, G. Colavolpe, M. Conti, T. Foggi, A. Mengali, G. Montorsi, A. Piemontese, and A. Vanelli-Coralli, “Architectures, standardisation, and procedures for 5G Satellite Communications: A survey,” *Computer Networks*, vol. 183, Dec. 2020.
- [J3] A. Ugolini, A. Piemontese, and T. Eriksson, “Spiral Constellations for Phase Noise Channels,” in *IEEE Transactions on Communications*, vol. 67, no. 11, pp. 7799-7810, Nov. 2019.
- [J4] A. Piemontese and A. Graell i Amat, “MDS-coded distributed caching for low delay wireless content delivery,” *IEEE Trans. Commun.*, vol. 67, no. 2, pp. 1600-1612, Feb. 2019.
- [J5] G. Colavolpe, A. Modenini, A. Piemontese, and A. Ugolini, “Multiuser detection in multibeam satellite systems: theoretical analysis and practical schemes,” *IEEE Trans. Commun.*, vol. 65, pp. 945-955, Feb. 2017.
- [J6] M. Messai, A. Piemontese, G. Colavolpe, K. Amis, and F. Guilloud, “Binary CPMs with improved spectral efficiency,” *IEEE Commun. Letters*, vol. 20, pp. 85-88, Jan. 2016.
- [J7] A. Modenini, A. Ugolini, A. Piemontese, and G. Colavolpe, “On the use of multiple satellites to improve the spectral efficiency of broadcast transmissions,” *IEEE Trans. On Broadcasting*, vol. 61, pp. 590-602, Dec. 2015.
- [J8] A. Piemontese, A. Graell i Amat, and G. Colavolpe, “Frequency packing and multiuser detection for CPMs: how to improve the spectral efficiency of DVB-RCS2 systems,” *IEEE Wireless Commun. Letters*, vol. 2, pp. 74–77, Feb. 2013.
- [J9] A. Piemontese, A. Modenini, G. Colavolpe, and N. Alagha, “Improving the spectral efficiency of nonlinear satellite systems through time-frequency packing and advanced processing,” *IEEE Trans. Commun.*, vol. 61, pp. 3404–3412, Aug. 2013.
- [J10] A. Piemontese, N. Mazzali, and G. Colavolpe, “Improving the spectral efficiency of FDM-CPM systems through packing and multiuser processing,” *International Journal of Satellite Communications and Networking*, vol. 30, pp. 62–72, Feb. 2012. *Invited paper*
- [J11] G. Colavolpe and A. Piemontese, “Novel SISO detection algorithms for nonlinear satellite channels,” *IEEE Wireless Commun. Letters*, vol. 1, pp. 22–25, Feb. 2012.

- [J12] G. Colavolpe, T. Foggi, A. Modenini, and A. Piemontese, “Faster-than-Nyquist and beyond: how to improve spectral efficiency by accepting interference,” *Opt. Express*, vol. 19, pp. 26600–26609, Dec. 2011.
- [J13] G. Colavolpe, D. Fertoni, and A. Piemontese, “SISO detection over linear channels with linear complexity in the number of interferers,” *IEEE J. Sel. Topics in Signal Proc.*, vol. 5, pp. 1475–1485, Dec. 2011.
- [J14] A. Piemontese and G. Colavolpe, “A novel graph-based suboptimal multiuser detector for FDM-CPM transmissions,” *IEEE Trans. Wireless Commun.*, vol. 9, pp. 2812–2819, Sep. 2010.
- [J15] A. Barbieri, A. Piemontese, and G. Colavolpe, “On the ARMA approximation for fading channels described by the Clarke model with applications to Kalman-based receivers,” *IEEE Trans. Wireless Commun.*, vol. 8, pp. 535–540, Feb. 2009.

Peer reviewed conference publications in proceedings

- [C1] A. Piemontese, G. Colavolpe, and T. Eriksson, “A new discrete-time model for channels impaired by phase noise,” to be presented to IEEE Global Telecommun. Conf., (Madrid, Spain), Dec. 2021.
- [C2] A. Ugolini, A. Piemontese, T. Eriksson, and C. Du, “Design of Spiral Constellations for Phase Noise Channels,” *Proc. IEEE Wireless Communications and Networking Conference*, (Marrakesh, Morocco), Apr. 2019. **Best paper award**
- [C3] C. Du, Z. S. He, J. Chen, A. Piemontese, J. An, H. Zirath, and T. Eriksson, “Experimental Verification of Phase Noise Robust Spiral Constellation for THz and Optical Communication,” in *Proc. IEEE Asia Pacific Microwave Conference*, (Kuala Lumpur, Malaysia), Nov. 2017.
- [C4] A. Ugolini, A. Piemontese, A. Vanelli-Coralli, and G. Colavolpe, “Efficient Satellite Systems Based on Interference Management and Exploitation,” in *Proc. Asilomar Conference on Signals, Systems, and Computers*, pp. 492–496, (Pacific Grove, CA), Nov. 2016. **Invited paper**
- [C5] A. Piemontese, and A. Graell i Amat, “MDS-coded distributed storage for low delay wireless content delivery,” in *Proc. Int. Symp. on Turbo Codes & Iterative Information Processing*, pp. 320–324, (Brest, France), Sep. 2016.
- [C6] G. Colavolpe, A. Modenini, A. Piemontese, and A. Ugolini, “On the application of multiuser detection in multibeam satellite systems,” in *Proc. IEEE Int. Conf. Commun.*, pp. 898–902, (London, UK), June 2015.
- [C7] G. Colavolpe, A. Modenini, A. Piemontese, and A. Ugolini, “Multiuser detection in multibeam satellite systems: theoretical analysis and practical schemes,” in *Proc. IEEE Int. Work. on Signal Processing Advances for Wireless Commun.*, pp. 525–529, (Stockholm, Sweden), July 2015. **Invited paper**
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Luogo e Data

Firma

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