

Philippe Mary

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Date of Birth : 27th March 1979
Nationality : French
Marital status : married

Actual situation

- Post-doctoral researcher at ETIS UMR 8051 - CNRS/ENSEA/Univ. of Cergy-Pontoise, on resource allocation in ad-hoc Time-Hopping Ultra-Wide Band Networks.

EDUCATION

- 2008** **PhD** in Telecommunications from Institut National des Sciences Appliquées (INSA), Lyon, (*France*) : “Analytical Outage Expressions Considering Shadowing, MIMO, Coding and Interference”.
- 2004** **MSc** Degree from Nice Sophia-Antipolis University (*France*) in Signal Processing and Digital Communications, with special awards.
- 2004** **Diploma** in Electrical Engineering from EPU (Ecole Polytechnique Universitaire) of Nice Sophia-Antipolis (*France*).
- 1999** First year preparation courses for top school (“Mathématique Supérieure” in French) at Ecole des Pupilles de l’Air (*Grenoble, France*).
- 1998** Baccalauréat S (Equivalent to A-level Diploma specialised in sciences) at Lycée St Joseph, with special awards.

RESEARCH

PhD We analyse the performance of telecommunication signals experiencing fast fading and shadowing. In fast fading channels only, the important design criterion is the symbol error probability (SEP) which depends on the average SNR. However, when shadowing is considered, the SEP does not hold to describe the performance of wireless systems because it varies. We consider the symbol error outage (SEO) defined as the probability to observe a given average SEP over a fading channel in a shadowing environment. Expressions describing the SEO have to-date either not been known or been expressed in integral form. In this thesis, we give some new tight approximations of the SEP which facilitates inversion w.r.t. the SNR and hence allows the SEO to be obtained in closed form in the presence of shadowing and interference as well as usage of MIMO and channel coding. That is utmost useful for analytical system optimisation approaches, which has so far been done by means of system level simulations.

Publications Book Chapter

J.-M. Gorce, G. Villemaud, P. Mary, **Couche Physique et Antennes**, Included in *Réseaux de capteurs : théorie et modélisation*, Ed. Hermes *In revision*.

International Journal Papers

P. Mary, M. Dohler, J.-M. Gorce, G. Villemaud, M. Arndt, **M-ary Symbol Error Outage over Nakagami-m Fading Channels in Shadowing Environments**, *To appear in IEEE Transactions on Communications*,

P. Mary, M. Dohler, J.-M. Gorce, G. Villemaud, M. Arndt, **BPSK Bit Error Outage over Nakagami-m Fading Channels in Lognormal Shadowing Environments**, *IEEE Communications Letters*, vol. 11, no. 7, 2007, July, pp : 565-567.

International Journal Papers submitted or in preparation

P. Mary, M. Dohler, J.-M. Gorce, G. Villemaud, **Packet Error Outage for Coded Systems Experiencing Fading Channels and Interference in Shadowing Environment**, *To be submitted*.

International Conference Papers

P. Mary, M. Dohler, J.-M. Gorce, G. Villemaud, **Symbol Error Outage for Spatial Multiplexing Systems in Rayleigh Fading Channel and Lognormal Shadowing**, *Submitted to IEEE SPAWC 2009*,

P. Mary, J.-M. Gorce, G. Villemaud, M. Dohler, M. Arndt, **Reduced Complexity MUD-MLSE Receiver for Partially-Overlapping WLAN-Like Interference**, *The 65th IEEE Vehicular Technology Conference, 2007. VTCspring 2007, Page(s) :1876-1880*, Dublin Ireland, 2007,

P. Mary, J.-M. Gorce, G. Villemaud, M. Dohler, M. Arndt, **Performance Analysis of Mitigated Asynchronous Spectrally-Overlapping WLAN Interference**, *The IEEE Wireless Communications and Networking Conference, 2007. WCNC 2007. IEEE Page(s) :2097 - 2102*, Hong Kong 2007,

P.-F. Morlat, P. Mary, G. Villemaud, J.-M. Gorce, M. Arndt, **Performance Validation of a Multi-Standard and Multi-Antenna Receiver**, *The European Conference on Antennas and Propagation : EuCAP 2006 (ESA SP-626)*, Nice France, 2006.

National Conference Papers

P. Mary, M. Dohler, J.-M. Gorce, G. Villemaud, M. Arndt, **Estimation du taux de coupure d'une liaison radio MIMO dans un canal de Nakagami avec effet de masque**, *In proc. GRETSI'07*, Troyes, 2007.

Reviewing

- Reviewer for IEEE Communications Letters,
- TPC member for IEEE PIMRC 2008 and IEEE VTCspring 2009,
- Reviewer for ICC, PIMRC, WCNC, VTC.

Research projects

- ANR RISC (Heterogeneous networks for emergency situation) (2008 - 2009),
- ARC IRAMUS (Radio interface for multi-hop wireless networks) (2005-2006),
- RNRT project IDROMel (Impact of reconfigurable equipment for the roll-out of future mobile networks) (2006 - 2007).

TEACHING

2008-2009	MSc level at University of Cergy-Pontoise	
	Lecturing on Digital Communications, OFDM, DS-SS.	16 h
	Labwork on matlab (Optimization, Wiener filtering, LMS, RLS).	6 h
	Labwork on matlab (Digital Communications, OFDM).	6 h
2007-2008	Technological Institute University (IUT) Grenoble	
	Supervised exercise work in Mathematics.	60 h
	INSA Lyon (5th year) Electrical Engineering Department	
	Lecturing on MIMO and Smart Antennas.	4 h
2006-2007	INSA Lyon (5th year) Electrical Engineering Department	
	Lecturing on MIMO and Smart Antennas.	4 h
	INSA Lyon (5th year) Telecommunication Department	
	Lecturing on Digital Communications.	10 h
2005-2006	INSA Lyon (3rd year) Telecommunication Department	
	Labwork on Simulink (ADSL chain design).	8 h
	INSA Lyon (4th year) Telecommunication Department	
	Lecturing on Digital Communications (equalization).	2 h
	INSA Lyon (5th year) Electrical Engineering Department	
	Lecturing on Smart Antennas.	2 h

MASTER STUDENTS

- 2007** Anya APAVATJRUT from INSA *Lyon*.
Interference Rejection for Heterogeneous Signals.
- 2006** Jordi VILA VALLS. Student from UPC (*Spain*) and ENSERG (*France*).
FREquency SHift (FRESH) filtering for interference rejection in WLAN systems.

WORK EXPERIENCE

- 2008-2009 Post-doctoral researcher : ETIS Laboratory- UMR 8051 CNRS/ENSEA/University of Cergy-Pontoise.**
Research : Resource allocation in ad-hoc TH-UWB networks.
- 2004-2008 PhD student : INSA Lyon and France Telecom R&D Grenoble.**
Research : Performance in wireless communications considering fading channels and shadowing. Multi-user receivers and interference cancellation.
Teaching : Lecturer in INSA Lyon and IUT Grenoble.
- 2004 Electrical Engineering internship : Newlogic Technologies (*Sophia-Antipolis, France*), 6 months.**
I studied both standard propositions on high data rate UWB (802.15.3a). I designed the complete baseband transceiver in Matlab. I have searched a specific symbol time synchronisation algorithm for the multi-band OFDM proposal and studied it in Gaussian and exponential channels.
- 2003 Internship in Newlogic Technologies, 2 months.**
Matlab test bench generation in order to validate the VHDL version of an IEEE 802.11b modem.
- 2002 Internship in Schneider Electric (*Sophia-Antipolis, France*), 3 months.**
Software design to automate a test bench measuring the immunity of industrial robots to electromagnetic perturbations.

KEY SKILLS

Languages	French : Mother Tongue English : Fluent, TOEIC score 780 (2004). Spanish : Conversational, high school level.
Telecoms	Digital Communications : Modulation, Channel Coding, Equalisation, Synchronisation, Spread Spectrum systems, OFDM, MIMO, Error Probability Modelisation, Interference Rejection, Multi-User Detection. Standards : IEEE 802.11x, UMTS (PHY layer)
Signal Processing	Estimation, Detection, Spectral Analysis, Adaptive Filtering, Random Matrices.
Computing	Programming : C, C++, Java, Assembly, VHDL. Software : Matlab, Maple, L ^A T _E X, Microsoft Office. Operating systems : Linux, OS X, Windows.

MISCELLANEOUS

- Sport** : paragliding, glider pilot (≈ 300 h flying), plane pilot (first level), baseball.
Hobbies : Astrophysic, Science-Fiction reader.

REFERENCES

- Mischa Dohler** : Centre Tecnologic de Telecomunicacions de Catalunya
Parc Mediterrani de la Tecnologia
Av. Canal Olympic S/N
08860 Castelldefels
Barcelona, (Spain)
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- Jean-Marie Gorce** : Laboratoire CITI
INSA-Lyon
Bât. Claude Chappe
6, avenue des Arts,
69621 Villeurbanne, cedex (France)
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