

DETAILED CURRICULUM VITAE

Last Name : Błaszczyszyn *First Name* : Bartłomiej (Bartek)
Date and place of birth : 27/07/1967, Wrocław (Poland)
Citizenship : Polish *Sex* : M
Mailing address : 2 rue Pierre Semard,
92220 Bagneux,
France
Telephone : office: (+33) 01 44 32 20 41 home: (+33) 01 46 12 96 09
E-mail : Bartek.Blaszczyszyn@ens.fr
Web page : <http://www.di.ens.fr/~blaszczy/>

1. *Diplomas*

- Habilitation (HDR) in Mathematics, 2008, Department of Mathematics and Computers Science, University of Wrocław,
- Ph.D. in Applied Mathematics, 1995, Mathematical Institute University of Wrocław,
- Master Degree in Applied Mathematics, 1990, Mathematical Institute University of Wrocław.

2. *Professional history*

- [1] Research Associate (CR1)
Institution (city -country) : INRIA Paris-Rocquencourt, project-team TREC
Start : 2001
- [2] Assistant Professor (on leave since October 1999)
Mathematical Institute University of Wrocław, Poland
1996

TRAINING AND PROFESSIONAL HISTORY

<i>INSTITUTIONS</i>	<i>POSITIONS</i>	<i>START</i>	<i>END</i>	<i>REMARKS</i>
Mathematical Inst. Univ. of Wrocław	assistant	1990	1995	junior academic staff
Paris VI and CNRS (France)	visiting scholar	Jan 1992	March 1992	founded by TEMPUS
Inst. of Stochastics Univ. of Ulm (Ger- many)	visiting scholar	Feb 1994	Apr 1994	founded by DFG
IEOR, Columbia University (USA)	visiting researcher	Sept 1997	Apr 1998	founded by Kość- ciuszko Found.
INRIA/ENS TREC (France)	research engineer	Oct 1999	Sept 2001	founded by CTI France Telecom

3. Prizes and awards

- Second prize for the Master Thesis (Polish Mathematical Society, Wrocław Department),
- PhD with congratulations of the jury,
- Award for the Doctoral Thesis (President the University of Wrocław),
- Award for teaching results (President of the University of Wrocław),
- The Marcel F. Neuts Prize for the best paper in volume 20 (2004) of *Stochastic Models*,
- HDR with congratulations of the jury.

4. Main publications

In the following, the numbers correspond to the Complete Publication List ; see page 7.

- [3] Queues in series in light traffic. *Ann. Appl. Probab.* **3** (1993), 881–896 ; with Rolski, T.
- [4] Factorial-moment expansion for stochastic systems. *Stoch. Proc. Appl.* **56** (1995) 321–335 ;
- [8] Risk and duality in multidimensions. *Stoch. Proc. Appl.* **83** (1999), 331–356 ; with Sigman, K.
- [9] Bounds for clump size characteristics in the Boolean model. *Adv. in Appl. Probab. (SGSA)* **31** (1999), 910–928 ; with Rau, C. and Schmidt, V.
- [10] On a coverage process ranging from the Boolean model to the Poisson Voronoi tessellation, with applications to wireless communications. *Adv. in Appl. Probab. (SGSA)* **33** (2001), 293–323 ; with Baccelli, F.
- [12] Approximate decomposition of some modulated-Poisson Voronoi tessellations, *Adv. Appl. Probab. (SGSA)* **35** (2003), 847-862 ; with Schott, R.
- [13] Performance characteristics of multicast flows on random trees, *Stochastic Models* **20**, 341-361 (2004) ; with Tchoumatchenko, K.
- [14] Up and downlink admission / congestion control and maximal load in large homogeneous CDMA networks. *Mobile Networks and Applications (MONET), Special Issue on Optimization of Wireless and Mobile Networks* **9**(6), 605–617 (2004) ; with Baccelli, F. and Karray, M.
- [16] An Aloha protocol for multihop mobile wireless networks, *IEEE Transactions on Information Theory* **52**(2), pp. 421–436, (2006) ; with Baccelli, F. and Mühlethaler, P.
- [22] Spatial averages of downlink coverage characteristics in CDMA network. In *Proc. of IEEE INFOCOM* (2002), 381-390, with Baccelli, F. and Tournois, F.
- [23] Downlink admission / congestion control and maximal load in CDMA networks. In *Proc. of IEEE INFOCOM* (2003) ; with Baccelli, F. and Tournois, F.
- [26] Blocking rates in large CDMA networks via a spatial Erlang formula. In *Proc. of IEEE INFOCOM* (2005) ; with Baccelli, F. and Karray, M.K.
- [27] Performance evaluation of scalable congestion control schemes for elastic traffic in cellular networks with power control, In *Proc. of IEEE INFOCOM* (2007) ; with Karray, M.K.
- [29] Using transmit-only sensors to reduce deployment cost of wireless sensor networks. In *Proc. of IEEE INFOCOM* (2008) ; with Radunovic, B.
- [17] Stochastic analysis of spatial and opportunistic Aloha, *IEEE Journal on Selected Areas in Communications*, accepted (2009) ; with Baccelli, F. and Mühlethaler, P.
- [18] Directionally convex ordering of random measures, shot-noise fields and some applications to wireless networks, *Adv. Appl. Probab.* accepted (2009) [<http://fr.arxiv.org/abs/0806.3180>] ; with Yogeshwaran, D.
- [40] *Spatial Modeling of Wireless Communications, a Stochastic Geometry Approach*, monograph for *Foundations and Trends in Networking*, to appear in NOW Publishers ; ca 250 pages. with Baccelli, F.

5. *Technology development : Description of Software or Other Realization*

K2 This software was developed in the PhD thesis of F. Tournois (see page 4) for the simulation of large CDMA networks, and in particular, for the evaluation of the coverage and capacity. It is based on the stochastic geometry approach co-developed by the candidate. In particular it integrates results of [22], [23]. The originality of this software, when compared to existing simulation platforms, e.g. Parcell, Odyssey, or le G-STB of France Télécom, consists in combination of deep mathematical results with user-friendly graphical front-end. It was used by France Télécom R&D in relation with the CRE on the densification of UMTS networks.

SERT A software called SERT (Spatial Erlang for Real Time services) was designed by M.K. Karray for the evaluation of various properties of streaming and data traffic in large CDMA networks and in particular the probability that calls are blocked due to the infeasibility of the power control inherent to CDMA. This tool is based on the research that the candidate conducted with FT R&D reported in the PhD thesis (see page 4) supervised by the candidate, in particular on the results of [26], [27]. This software is not a simulation platform, it implements closed form mathematical expressions. It is now part of the dimensioning tools used by Orange for its UMTS network. It contains solutions protected by patents [42], [43], [44].

6. *Technology transfer of research result*

In 2003, the candidate was participating in the development of a mathematical analysis of the interference in the context of the power control used in CDMA networks reported in [23]. This approach, enriched since this time in collaboration with researchers from FT R&D, has led to the definition of a new class of admission and congestion control algorithms [14], [26], [27]. Three patents have been filed on this subject [42], [43], [44]. The interest in these algorithms comes from the fact that they allow for explicit evaluation of several macroscopic characteristics of the network. In this sense they are pertinent to the process of the UMTS network engineering (planning, densification). Two “contrats de recherche externalisée” (CRE) for about 35 000 Euro each one, with France Télécom R&D RESA (ex DMR) represented by J-M. Kelif and M.K. Karray, were signed and realized in 2003 and 2004 entitled “Strategies for the densification of the UMTS network”. The results are used by Orange through the SERT software tool. Difficulties with IP have stalled a third contract. The candidate was actively participating in the preparation of these contracts, development of the technical content and preparation of the deliverables.

7. *Supervision of research activities*

- **Master thesis done in Mathematical Institute University of Wrocław In 1995–1999 :**
 - *Student* : Magdalena Węgrzyn, *Subject* : Probabilities of symmetrical combinations of events with applications to group life insurance. This thesis presents on a larger mathematical background a theorem known in life insurance mathematics as Schuette-Nesbitt theorem. A worksheet utilizing this theorem and allowing for premium calculations was developed.
 - *Student* : Leszek Potas, *Subject* : Probabilistic modeling of some voting techniques.
 - *Student* : Barbara Pielucha, *Subject* : Examples of applications of phase-type distributions to renewal and reliability theories.
 - *Student* : Aneta Knihnicka, *Subject* : On a content – risk type stochastic recursion duality. This thesis provides a description and various examples of the duality for stochastic processes ; the classical example is the duality between G/G/1 queue workload – insurance risk process.

- **Master thesis (“stage de DEA”) at INRIA/ENS TREC :**
 - *Student* : Florent Benaych-Georges, *Year* : 2001, *Subject* : Mathematical analysis of the protocol IEEE 802.11. Characterization of the stationary regime and the maximal throughput. (Co-supervision with prof. F. Baccelli)
 - *Student* : Emmanuel Roy, *Year* : 2002, *Subject* : Point stationarity. (Co-supervision with prof. F. Baccelli)
 - *Student* : Minh Anh Tran, *Year* : 2003 *Subject* : Attenuation of the tri-sector antennas and the capacity of the down-link in CDMA. The obtained results are exploited by Orange, implemented in a dimensioning tool called SERT
 - *Student* : Yogeshwaran Dhandapani, *Year* : 2006, *Subject* : Poisson-Poisson cluster SINR coverage process
- **Ph.D thesis at INRIA/ENS TREC :**
 - *Student* : Florent Tournois (ENS & Corps des Télécoms), *Year* : 2000–2002, *Subject* : Modeling and simulating of the CDMA networks by means of stochastic geometry. In this thesis a comprehensive simulation platform K2 was designed and developed in C++ integrating theoretical methods proposed in [10], [11], [22], [23] (Co-supervision with prof. F. Baccelli)
 - *Student* : Charles Bordenave (Ecole Polytechnique & Corps des Télécoms), *Year* : 2003–2006 *Subject* : Stochastic analysis of spatial networks. The candidate was advising only in the initial phase of the thesis concerning optimal power allocation in CDMA networks with macrodiversity; (Co-supervision with prof. F. Baccelli)
 - *Student* : Mohamed Karray (France Telecom and ENST), *Year* : 2003–2007, *Subject* : Analytic evaluation of wireless cellular networks performance by a spatial Markov process accounting for their geometry, dynamics and control schemes. This thesis is a fruit of a long formal (two grants CRE) and informal collaboration with FT R&D on decentralized load control in large cellular networks, which lead to publications of [14], [26], [27], [32] and patents [42], [43], [44]. The obtained results are exploited by Orange, implemented in a dimensioning tool called SERT (primary adviser, co-supervision with prof. E. Moulines from ENTS)
 - *Student* : Perla Sousi (INRIA-Cordi & Paris VI), *Year* : 2006 *Subject* : Connectivity and percolation in large-scale ad-hoc networks. Initial work concerned extensions of existing results to random (in particular controlled) powers and uni-directional communications. (Co-supervision with prof. F. Baccelli; the student quited the thesis after the first year).
 - *Student* : Yogeshwaran Dhandapani, (ENS/EADS Phd fund & Paris VI), *Year* : from 2007 on, *Subject* : Stochastic geometry modeling of spatial wireless communication networks — beyond the Poisson assumption. The thesis initially focused on revisiting of the existing 1D and 2D models and results for wireless communications in order to relax some simplifying Poissonity/homogeneity/regularity conditions. Currently spatial stochastic comparison methods are being developed; see [18]. (primary adviser, co-supervision with prof. F. Baccelli)

8. Teaching

Calculus 1 and 2. Courses taught in 1997-1999 in Mathematical Institute University of Wroclaw.

Life insurance mathematics. In 1995–1999 participation in the creation of the new curriculum “Mathematics in economics and insurance” in the Mathematical Institute University of Wroclaw. Co-development (jointly with T. Rolski) and teaching (twice) a one-semester undergraduate course on *Life insurance mathematics*. The authors’ notes to this lecture were published by WNT as a text-book [21] in 2004.

Stochastic geometry. In 2006–2008 the candidate co-developed (jointly with F. Baccelli, and L. Mas-soulié) a graduate course on *Point processes, stochastic geometry and random graphs* at the University Paris 6; he is currently lecturing (18 hours per semester) on stochastic geometry.

9. Dissemination of scientific knowledge

Invited lectures

- “Stochastic geometry and communication networks”, tutorial lecture on *Performance Conference* Juan-les-Pins, France, 2005; see the transparencies at [<http://www.di.ens.fr/~blaszczy/PerformanceT1B-Blaszczyszyn.pdf>]
- “Tessellations in communication networks : Voronoi and beyond it” invited lecture at the conference *The World a Jigsaw : Tessellations in the Sciences*, University of Leiden and Lorentz Center, Netherlands, 2006; see the transparencies at [http://www.di.ens.fr/~blaszczy/LeidenTIS_slides.pdf]
- “A Stochastic Geometry Framework for Modeling of Wireless Communication Networks”, invited lecture at the *10th Conference on Probability*, Będlewo, Poland, 2008; see the transparencies at [http://www.di.ens.fr/~blaszczy/Bedlewo08_slides.pdf]

Conference organization The candidate has organized several special sessions and workshops promoting the SG approach to wireless communications including two SpaSWiN [<http://www.spaswin.org/2005>], [<http://www.spaswin.org/2008>] workshop editions

Book The candidate is also actively working on a book project [40] focused on the use of the stochastic geometry framework for the modeling of wireless communications. The book will survey the main papers and more recent results obtained by this approach.

10. Collaborations, visits

- From January to March 1992, while being a TEMPUS fellow and visiting the University of Paris VI (France), the candidate had many private communications with P. Brémaud and worked out the key result of his thesis [1] published in [4]. It is the factorial moment expansion (FME) of functionals of marked point process. It can be seen as a generalization of a well known expansion of the probability generating functional for a wider class of the functionals of point processes. This general result can be applied to get (light traffic or perturbation type) approximations of various characteristics of stochastic models. In a most suitable scheme, called π -thinning, approximations are polynomial in the retention probability π . Several examples of such approximations, including waiting time in Markov-modulated queues [5], risk process [6], have been developed later by the candidate. Other interesting cases consider approximations of a subclass of Poisson Petri nets.
- From February to April 1994, while being a DFG fellow and visiting the Institute of Stochastics University of Ulm (Germany), the candidate was collaborating with V. Schmidt and his students. It is then, that the FME of the Markov-modulated queues [5] and the spatial extension [7] of the FME was worked out. This visit resulted also in the candidate’s initiation to the stochastic geometry, leading later to the common publication [9].
- From September 1997 to April 2000, during his post-doc in IEOR Department, Columbia University (USA), founded by the Kościuszko Found., the candidate was collaborating with K. Sigman. This work resulted in the publication [8]. The Choquet’s capacity functional — a basic tool of the theory

of random closed sets — is used to construct a Markov process on the space of closed sets, which is in some particular relation to a given Markov process. The relation, called in the queueing theory *content-risk duality*, allows one to express the stationary distribution of the content process by the ruin probabilities of the risk process.

- From October 1999 to September 2000, during his first period with INRIA/ENS TREC, the candidate was research engineer in the CTI grant of France Télécom R&D. It is then that the candidate started working on modeling of wireless communication networks by means of stochastic geometry. This period resulted in the joint publication of a seminal paper [10] and the preparation of [22], [11]. The candidate was also participating in the RNRT project *Georges* on the stochastic geometry for the analysis of communication networks, in which INRIA was cooperating with ENST et France Télécom R&D.

11. Responsibilities

- **Participation in the program committee of**
 - IEEE Conference on Computer Communications (INFOCOM) in 2007,
 - International Conference on Mobile Ad-hoc and Sensor Networks (MSN) in 2006 and 2007,
 - 1st, 2nd and 4th workshop on Spatial Stochastic Modeling of Wireless Networks (SpaSWiN) 2005, 2007 and 2008,
- **Conference organization**
 - Co-organizer of the invited session on Stochastic Geometry and Telecommunication Modeling organized during the 25th European Meeting of Statisticians (EMS'05), Oslo, Norway, July 2005,
 - Organizer of the invited session on Spatial Stochastic Modeling of Communication Networks during 13th Informs Applied Probability Conference, Ottawa, Canada, July 2005,
 - Co-chair of the 1st and 4th workshop on Spatial Stochastic Modeling of Wireless Networks (SpaSWiN) 2005 and 2008,
 - Co-organizer of the session “Géométrie aléatoire et applications aux réseaux” during “Journées MAS de la SMAI, Modèles Spatiaux”, Polytechnique de Lille, September 2006,
- **Participation in the Ph.D. thesis committee** of N. Mitton (Université Lyon 1 ; 2006), M. Karay (ENST ; 2007).
- **Reviewer** of the Ph. D. thesis of H. Koskinen, (Helsinki University of Technology ; 2006) and of an ANR Telecom proposal (2007).
- **Member of the organizing committee** (2007–2008) of the Scientific Colloquium of INRIA Rocquencourt *Le modèle et l'algorithme* [<http://www-c.inria.fr/Internet/rendez-vous/modele-et-algo>].

COMPLETE PUBLICATION LIST

Last name: Błaszczyszyn First name: Bartłomiej (Bartek)

Doctoral Dissertation and Habilitation Thesis

- [1] Factorial Moment Expansion for Functionals of Point Processes With Application to Approximations of Stochastic Models. *Doctoral Dissertation*, Mathematical Institute University of Wrocław, Poland (1995); [<http://www.math.uni.wroc.pl/~blaszcz/xthesis.ps>]
- [2] Stochastic Geometry Methods and their Applications in Queuing and Telecommunications, *Habilitacja (Habilitation à Diriger des Recherches)*, Department of Mathematics and Computer Science, University of Wrocław, Poland (2008); [<http://www.di.ens.fr/~blaszczy/autoref1.pdf>]

Articles in International Peer-Reviewed Journals

- [3] Queues in series in light traffic. *Ann. Appl. Probab.* **3** (1993), 881–896; with Rolski, T.
- [4] Factorial-moment expansion for stochastic systems. *Stoch. Proc. Appl.* **56** (1995) 321–335.
- [5] Light-traffic approximations for Markov-modulated multi-server queues. *Stochastic Models* **11** (1995) 423–445; with Frey, A. and Schmidt, V.
- [6] Expansions for Markov-modulated systems and approximations of ruin probability. *J. Appl. Probab.* **32** (1996) 57–70; with Rolski, T.
- [7] A note on expansions for functional of spatial marked processes. *Statist. and Probab. Lett.* **36** (1997), 299–306 [<http://www.math.uni.wroc.pl/~blaszcz/spatial4www.ps>]; with Merzbach, E. and Schmidt, V.;
- [8] Risk and duality in multidimensions. *Stoch. Proc. Appl.* **83** (1999), 331–356 [<http://www.math.uni.wroc.pl/~blaszcz/dualsubmit2.ps>]; with Sigman, K.
- [9] Bounds for clump size characteristics in the Boolean model. *Adv. in Appl. Probab. (SGSA)* **31** (1999), 910–928 [http://www.math.uni.wroc.pl/~blaszcz/clump_final.ps]; with Rau, C. and Schmidt, V.
- [10] On a coverage process ranging from the Boolean model to the Poisson Voronoi tessellation, with applications to wireless communications. *Adv. in Appl. Probab. (SGSA)* **33** (2001), 293–323 [<http://www.inria.fr/rrrt/rr-4019.html>]; with Baccelli, F.
- [11] Spatial averages of coverage characteristics in large CDMA networks. *ACM Wireless Networks* **8** (2002), 569–586 [<http://www.inria.fr/rrrt/rr-4196.html>]; with Baccelli, F. and Tournois F.
- [12] Approximate decomposition of some modulated-Poisson Voronoi tessellations, *Adv. Appl. Probab. (SGSA)* **35** (2003), 847–862 [<http://www.inria.fr/rrrt/rr-4585.html>]; with Schott, R.
- [13] Performance characteristics of multicast flows on random trees, *Stochastic Models* **20**, 341–361 (2004) [<http://www.inria.fr/rrrt/rr-4388.html>]; with Tchoumatchenko, K.

- [14] Up and downlink admission / congestion control and maximal load in large homogeneous CDMA networks. *Mobile Networks and Applications (MONET), Special Issue on Optimization of Wireless and Mobile Networks* **9**(6), 605–617 (2004) [<http://www.inria.fr/rrrt/rr-4954.html>]; with Baccelli, F. and Karray, M.
- [15] Approximations of functionals of some modulated-Poisson Voronoi tessellations with applications to modeling of communication networks, *Japan Journal of Industrial and Applied Mathematics* (Special Issue on Voronoi diagrams in Science and Engineering), **22**(2) 179–204 (2005) [<http://www.inria.fr/rrrt/rr-5323.html>]; with Schott, R.
- [16] An Aloha protocol for multihop mobile wireless networks, *IEEE Transactions on Information Theory* **52**(2), pp. 421–436, (2006) [<http://www.inria.fr/rrrt/rr-4955.html>]; with Baccelli, F. and Mühlethaler, P.
- [17] Stochastic analysis of spatial and opportunistic Aloha, *IEEE Journal on Selected Areas in Communications, special issue on Stochastic Geometry and Random Graphs for Wireless Networks*, accepted (2009) [<http://hal.inria.fr/inria-00360800>]; with Baccelli, F. and Mühlethaler, P.
- [18] Directionally convex ordering of random measures, shot-noise fields and some applications to wireless networks, *Adv. Appl. Probab.* accepted (2009) [<http://hal.inria.fr/inria-00288866>]; with Yogeshwaran, D.

Scientific Books and Book Chapters

- [19] Light-traffic approximations in queues and related stochastic models. In : Dshalalow, J.H. (ed.) *Frontiers in Queueing : Models, Methods and Problems*. CRC Press, Boca Raton, Florida (1995) [<http://www.math.uni.wroc.pl/~blaszcz/ltrev.ps>]; with Rolski, T. and Schmidt, V.
- [20] Approximate decomposition of some modulated Poisson point process with locally dependent marking, in *Proc. of the International Conference on spatial point processes and its applications (SPPA)*, A. Baddeley, P. Gregori, J. Mateu, R. Stoica, D. Stoyan (eds.) Benicassim, Spain (2004).
- [21] *Life Insurance Mathematics*, WNT, (2004) 391 pages; with Rolski, T. (in polish)

In Proceedings of International Peer-Reviewed Conferences

- [22] Spatial averages of downlink coverage characteristics in CDMA network. In *Proc. of IEEE INFOCOM* (2002), 381-390 [<http://www.inria.fr/rrrt/rr-4196.html>]; with Baccelli, F. and Tournois, F.
- [23] Downlink admission / congestion control and maximal load in CDMA networks. In *Proc. of IEEE INFOCOM* (2003) [<http://www.inria.fr/rrrt/rr-4702.html>]; with Baccelli, F. and Tournois, F.,
- [24] A spatial reuse Aloha MAC protocol for multihop wireless mobile networks. In *40 th Annual Allerton Conference on Communication, Control, and Computing* (2003); with Baccelli, F. and Mühlethaler, P.
- [25] An Aloha protocol for multihop mobile wireless networks. In *Proc. of 16th ITC Specialist Seminar on Performance Evaluation of Wireless and Mobile Systems*, Antwerp, Belgium (2004); with Baccelli, F. and Mühlethaler, P.
- [26] Blocking rates in large CDMA networks via a spatial Erlang formula. In *Proc. of IEEE INFOCOM* (2005) [<http://www.inria.fr/rrrt/rr-5517.html>]; with Baccelli, F. and Karray, M.K.

- [27] Performance evaluation of scalable congestion control schemes for elastic traffic in cellular networks with power control, in *Proc. of IEEE INFOCOM* (2007) [<http://hal.inria.fr/inria-00121767>]; with Karray, M.K.
- [28] M/D/1/1 loss system with interference and applications to transmit-only sensor networks. In *Proc. of SPASWIN 2007* (associated to *WIOPT*) [<http://hal.inria.fr/inria-00121481>]; with Radunovic, B.
- [29] Using transmit-only sensors to reduce deployment cost of wireless sensor networks. in *Proc. of IEEE INFOCOM*, Phoenix (2008) [<http://arxiv.org/abs/cs/0609038v1>]; with Radunovic, B.
- [30] On the performance of time-space opportunistic routing in multihop mobile ad hoc networks. in *Proc. of WiOpt*, Berlin (2008); [http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=4586083]; with Baccelli, F. and Mühlethaler, P.
- [31] An optimized relay self selection technique for opportunistic routing in mobile ad hoc networks, in *Proc. of European Wireless Conference*, Prague (2008) [http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=4623843]; with Baccelli, F., Mühlethaler, P. and Ermel, E.
- [32] Impact of mean user speed on blocking and cuts of streaming traffic in cellular networks, in *Proc. of European Wireless Conference*, Prague (2008) [http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=4623911]; with Karray, M.K.
- [33] An efficient analytical method for dimensioning of CDMA cellular networks serving streaming calls, in *Proc. of ACM/ICST VALUETOOLS*, Athens (2008) [<http://eudl.eu/index.php?id=4258>]; with Karray, M.K.
- [34] Comparison for VANETs : conventional routing vs an advanced opportunistic routing scheme using active signaling, in *Proc. of ITST*, Phuket (2008) [http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=4740273]; with Laoutiti, A., Mühlethaler, P. and Toor, Y.
- [35] Opportunistic broadcast in VANETs (OB-VAN) using active signaling for relays selection, in *Proc. of ITST*, Phuket (2008) [http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=4740291]; with Laoutiti, A., Mühlethaler, P. and Toor, Y.

Research Reports

- [36] A spatial markov queueing process and its applications to wireless loss systems, INRIA, Tech. Rep. 00159330 (2007). [<http://hal.inria.fr/inria-00159330>]; with Baccelli, F and Karray, M.K.

In preparation

- [37] Dimensioning of the downlink in OFDMA cellular networks via an Erlang's loss model, Submitted to *Proc. of European Wireless'09*; with Karray, M.K.
- [38] Maximizing Throughput of Linear Vehicular Ad-hoc NETWORKS (VANETs) — a Stochastic Approach, Submitted to *Proc. of European Wireless'09*; with Mühlethaler, P. and Toor, Y.
- [39] A non-slotted Aloha model for wireless communications; explicit evaluation of the probability of successful reception,
- [40] *Spatial Modeling of Wireless Communications, a Stochastic Geometry Approach*, monograph for *Foundations and Trends in Networking*, to appear in NOW Publishers; ca 250 pages. with Baccelli, F.

[41] Extended Random Signal-to-Interference-and-Noise-Ratio Graphs with Fading, in preparation ; with Srikanth I.

Patents

[42] Device and method for controlling admission and congestion of the configuration of a wireless communication network, US Patent 7,317,922 (deposed 2003, filled 2008) deposed by INRIA ; with Baccelli, F and Tournois, F.

[43] Load control scheme and process with power control, European Patent EP 1473954 (deposed 2004, filled 2007), US Patent 7,363,005 (deposed 2004, filled 2008); deposed by INRIA and France Telecom ; with Baccelli, F. and M. K. Karray

[44] Controlling loads in the uplink direction for wireless communications systems with power control, European Patent EP 1473955 (deposed 2004, filled 2004); deposed by INRIA and France Telecom ; with Baccelli, F. and M. K. Karray

For more details see the European Patent Office [<http://ep.espacenet.com>] and the United States Patent and Trademark Office [<http://patft.uspto.gov>].