Title: Stochastic Tools used to Improve and/or to evaluate MAC layer in wireless networks

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Abstract: Wireless and mobile networks have many advantages as easy deployment and user mobility provides network access to users regardless to their locations. The most critical problems that arise in these networks are on the resource allocations as the bandwidth is limited, the propagation (multi-path, fading, distortion) and security since communications are transmitted over radio waves. In this lecture I will present several works done to model/Improve Quality of Service in Wireless networks. Three different methods will be presented in this lecture. In the first part a new model based on Markov chains is presented to model the different service classes defined in IEEE 802.16. The second part I will present a new AC that we have defined for IEEE 802.16 and we have evaluated using Stochastic Automata Networks. Finally I will present a stochastic comparison for admission control in wireless networks.

Bio: Prof. Ben-Othman received his B.Sc. and M.Sc. degrees both in Computer Science from the University of Pierre et Marie Curie, (Paris 6) France in 1992, and 1994 respectively. He received his PhD degree from the University of Versailles, France, in 1998. He was an Assistant Professor at the University of Orsay (Paris 11) and University of Pierre et Marie Curie (Paris 6), in 1998 and 1999 respectively. He was an Associate Professor at the University of Versailles from 2000 to 2011. He is currently full professor at the University of Paris 13 since 2011. Dr. Ben-Othman's research interests are in the area of wireless ad hoc and sensor networks, Broadband Wireless Networks, multi-services bandwidth management in WLAN (IEEE 802.11), WMAN (IEEE 802.16), WWAN (LTE), VANETS, Sensor and Ad Hoc Networks, security in wireless networks in general and wireless sensor ad hoc networks and vehicular ad hoc Networks. His work appears in highly respected international journals and conferences, including, IEEE ICC, Globecom, LCN, MSWIM, VTC, PIMRC etc. He has supervised and co-supervised several graduate students in these areas. He is widely known for his work on wireless ad hoc and sensor Networks, in particular, security. He gave several talks on these topics, as Keynote in conferences Road Transportation System Strategy and Standardization (Korea), WCCCS'13, NSERC DIVA Distinguished Lecture Series (Canada), P2MNET'10, PEDISWESA'09, and as invited talks in GIST

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He is an editorial board member of Wiley Wireless Communications and Mobile Computing (WCMC), Wiley Security and Communication Networks (SCN), Inderscience Int. J. of Satellite Communications Policy and Management, IEEE comsoc Journal of Communications and Networks (JCN) and International Journal On Advances in Networks and Services IJANS. He is also an Associate Editor of Wiley International Journal of Communication Systems (IJCS). He is also editor of Elsevier ICTexpress. He has served as a member of Technical Committees of more than 80 international IEEE/ACM conferences and workshops including ICC, Globecom, MSWIM, LCN. He is a member of IEEE and ACM. He has served as General co-chair of international conference on wireless networks and mobile communications (WINCOM'15), and program chair of IEEE New technologies mobility and security (NTMS'15). He has served as TPC Co-Chair for IEEE Globecom Ad hoc and Sensor and and Mesh Networking (Globecom, 2011, 2014). He will serve as TPC Co-Chair for IEEE Globecom Wireless and Mobile Networks symposium (Globecom, 2016), and as a TPC Co-Chair of IEEE Globecom Wireless Communications Symposium (Globecom 2010). He has served as TPC Co-Chair IEEE International Conference on Communications Ad hoc and Sensor and and Mesh Networking (ICC 2012, ICC 2014). He is serving as TPC Co-Chair IEEE International Conference on Communications Wireless and Mobile Networks symposium (ICC 2016). He also has served as TPC Co-Chair Wireless Networking Symposium of The IEEE International Wireless Communications and Mobile Computing Conference (IWCMC 2011, 2012, 2013, 2014, 2015, 2016), ACM International Symposium on QoS and Security for Wireless and Mobile Networks (Q2SWinet 2010, 2011, 2012), and other conferences as for ICNC, WSCP, CNIT. He has served as Workshop chair for 9th international Workshop on Wireless local Networks (WLN09) and 10th international Workshop on Wireless local Networks (WLN10). He served as a publicity chair of several conferences such as the 12th ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWIM 09), IEEE International Symposium on a World of Wireless Mobile and Multimedia Networks (WOWMOM 2010), 25th Biennial Symposium on Communications. He has also served as Tutorial chair for Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS 2014). He served as Local Arrangement Chair for the 13th IEEE International Symposium on Computer Communication (ISCC 09). As IEEE Comsoc Member, he has actively participated to the activities. He was the secretary and he is currently Vice chair of the IEEE Ad Hoc and sensor networks technical committee since january 2012. He is IEEE Comsoc distinguished lecturer since January 2015. He is member of the IEEE comsoc technical service board since January 2016. He is an active member of IEEE Communication softaware, CIS-TC, and WTC.