



SEMINAIRE EXCEPTIONNEL

(de 14h30 à 15h30, Amphi M001 Phelma, Bât. INP, Minatec,
ouvert à tous : enseignants, étudiants, chercheurs, administratifs, techniciens)

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“Enabling Ambient Electromagnetic Energy Harvesting for IoT Applications”

by Prof. Ke WU,

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2016 President of IEEE Microwave Theory and Techniques Society (MTT-S),

Abstract: The roadmap evolution and historical milestones of electromagnetic energy conversion and recycling techniques and related breakthroughs are reviewed with emphasis on low-density energy harvesting technologies for IoT systems. Ambient radiofrequency (RF) energy sources are examined in connection with omnipresent wireless system deployment. The effective use and recycling of such an ambient electromagnetic energy are the most relevant and critical issue for the current and future practicability of wireless energy harvesting in support of IoT sensing hardware. In this talk, a set of performance criteria and development considerations, required to meet the IoT needs for ambient energy harvesting is derived. A technological outlook of the performances that can be expected from different device technologies is assessed. Promising devices and emerging solutions in the development of ambient energy harvesters are also presented and discussed with a special highlight of our proposed disruptive schemes, which include hybrid energy harvesting approaches and cooperative system design platforms.

Dr. Ke Wu is Professor of electrical engineering, and Canada Research Chair in RF and millimeter-wave engineering at the Ecole Polytechnique (University of Montreal). He is also the NSERC-Huawei Industrial Research Chair in Future Wireless Technologies (the first Huawei-endowed Chair in the world). He has been the Director of the Poly-Grames Research Center and the Founding Director (2008-2014) of the Center for Radiofrequency Electronics Research of Quebec. He held/holds visiting/honorary professorships at various universities in the world. He has authored/co-authored more than 1100 referred papers and a number of books/book chapters and more than 40 patents. Dr. Wu was the general chair of the 2012 IEEE MTT-S International Microwave Symposium. He is the 2016 President of the IEEE Microwave Theory and Techniques Society (MTT-S). He also serves as the inaugural North-American representative in the General Assembly of the European Microwave Association (EuMA). He was the recipient of many awards and prizes including the inaugural IEEE MTT-S Outstanding Young Engineer Award, the 2004 Fessenden Medal of the IEEE Canada, the 2009 Thomas W. Eadie Medal from the Royal Society of Canada (The Academies of Arts, Humanities and Sciences of Canada), the Queen Elizabeth II Diamond Jubilee Medal, the 2013 Award of Merit of Federation of Chinese Canadian Professionals, the 2014 IEEE MTT-S Microwave Application Award, the 2014 Marie-Victorin Prize (Prix du Québec – the highest distinction of Québec in the Natural Sciences and Engineering), the 2015 Prix d'Excellence en Recherche et Innovation of Polytechnique Montréal and the 2015 IEEE Montreal Section Gold Medal of Achievement. He is a Fellow of the IEEE, a Fellow of the Canadian Academy of Engineering (CAE) and a Fellow of the Royal Society of Canada. He was an IEEE MTT-S Distinguished Microwave Lecturer from Jan. 2009 to Dec. 2011.

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