



SEMINAIRE EXCEPTIONNEL

(de 13 h à 14 h, salle Belledonne, IMEP, MINATEC,
ouvert aux chercheurs des autres laboratoires)

Mercredi 20 avril 2011

“Multiport Interferometer Techniques for Transceiver System Applications” by Ke WU

Abstract: This presentation discusses the basic concepts and development of multiport interferometer techniques (six-port in particular) and demonstrates their applications in the design of both ultra-wideband and carrier-based transceivers at microwave and millimeter-wave frequencies. Such emerging techniques can be extended to the design of transceivers over terahertz and optical ranges. Various architectures of the multiport circuits are discussed with respect to different applications. Practical implementations under different technological platforms are described with simulated and measured results for QAM and UWB applications. In particular, the equivalence between the multiport junction and mixing circuit is highlighted for direct frequency conversion and translation. It is shown that the proposed multiport technique is very promising and flexible for the low-cost design of microwave and millimeter-wave systems such as software-defined and cognitive radio architectures.

Ke Wu is professor of electrical engineering, and Tier-I Canada Research Chair in RF and millimeter-wave engineering at Ecole Polytechnique (University of Montreal). He also holds endowed chair professorships (visiting) and honorary professorships at various universities in the world. He has been the Director of the Poly-Grames Research Center and the Founding Director of the Center for Radiofrequency Electronics Research of Quebec. He has authored/co-authored over 780 referred papers and also a number of books/book chapters and patents. His current research interests involve substrate integrated circuits (SICs), antenna arrays, advanced CAD and modeling techniques, microwave photonics, and development of low-cost RF and millimeter-wave transceivers and sensors. Prof. Wu serves on editorial boards of many international journals and encyclopedia including guest editor and editor. He was Chair and General Chair of many international committees, conferences and symposia. He has been providing technical and academic consulting services to universities, corporations and agencies around the world. He will be the General Chair of the 2012 IEEE MTT-S International Microwave Symposium. He was the recipient of many awards and prizes including the first IEEE MTT-S Outstanding Young Engineer Award, the 2004 Fessenden Medal of the IEEE Canada and the 2009 Thomas W. Eadie Medal of the Royal Society of Canada (The Academies of Arts, Humanities and Sciences of Canada). Prof. Wu is an elected IEEE MTT-S AdCom member and serves as the chair of the IEEE MTT-S Member and Geographic Activities (MGA) Committee. 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 is an IEEE MTT-S Distinguished Microwave Lecturer.

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