SEMINAIRE EXCEPTIONNEL

(**de 10h à 11h**, Salle Z-202, Bât. Z, PHELMA, Minatec,
ouvert à tous : enseignants, étudiants, chercheurs, administratifs, techniciens)

Jeudi 13 juillet 2017

"Spintronics-Perspectives and Challenges"

by Prof. Brajesh Kumar KAUSHIK,
Dept. of Electronics and Communication Engineering, I.I.T., Roorkee, India,
Distinguished Lecturer for the IEEE Electron Devices Society.

Abstract: In the post-CMOS era, spintronics shall emerge as a potentially viable interdisciplinary field with credible technological perspectives. Spintronic exploits an electron's spin orientation and its associated magnetic moment as a state variable instead of a conventionally used charge in CMOS technology. The material and device level roadmaps for the field of spintronics suggest that the research work is at the infant stage and still require different elemental spin device developments with the understanding of associated underlying physics. In addition, the accurate models for the spintronic devices imitating the effect of stochastic behaviour and PVT (process, voltage, temperature) variations need to be explored. Spintronics based architectures are being considered for computing applications such as bio-inspired computing and quantum computing. These spintronics based novel computing approaches find applications in image processing and provide efficient solution to the complex computing problems. The lecture will give an overview of this broad field of research and of its challenges.

Brajesh Kumar Kaushik *received his Doctorate of Philosophy (Ph.D.) in 2007 from Indian Institute of Technology, Roorkee, India. He joined Department of Electronics and Communication Engineering, Indian Institute of technology, Roorkee, as Assistant Professor in December 2009; and since April 2014 he has been an Associate Professor. He is Editor-in-Chief of International Journal of VLSI Design & Communication Systems and holds the position of Editor of Microelectronics Journal (Elsevier), Journal of Engineering, Design and Technology (Emerald Group), Journal of Electrical and Electronics Engineering Research (Academic Journals). Dr. Kaushik has been conferred with Distinguished Lecturer award of IEEE Electron Devices Society (EDS) to offer EDS Chapters with quality lectures in his research domain. His research interests are in the areas of high-speed interconnects, low-power VLSI design, memory design, carbon nanotube-based designs, organic electronics, FinFET device circuit co-design, electronic design automation (EDA), spintronics*-based devices, circuits and computing, image processing, and optics and photonics based devices.

Institut de Microélectronique, Electromagnétisme et Photonique
MINATEC, Grenoble-INP, 3 Parvis Louis Néel, CS 50257, 38016 GRENOBLE CEDEX 1, France
Tél. +33 (0) 456.529.503 - Fax. +33 (0) 456.529.501
UMR 5130 CNRS INPG UJF
Institut Polytechnique de GRENOBLE