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**SEMINAR SERIES ON CHAOS, CONTROL AND COMPLEX NETWORKS**

**Application of Gaussian Impulses and Chaotic Signals in Ultra-Wideband Communications**

**Mr. Tamas Istvan Krebesz**

Budapest University of Technology and Economics, Hungary

Date and Time: Friday, 13 March 2009, 4:30pm – 5:30pm

Venue: Room CD634, Hong Kong Polytechnic University

Reception starts at 4:15pm

(Language: **English**)

**Abstract**

Exploiting the benefits of ultra-wideband signals new communication channels can be established in the frequency bands already occupied by conventional telecommunications systems, causing no interference. Frequency re-use can be achieved by radiating signals having very low power spectral density limited to -41.3 dBm in a 1-MHz frequency slot. To establish communications ultra-wideband signals have to be used to transmit information. Chaotic signals and Gaussian impulses have several benefits to be considered for ultra-wideband communications. On the other hand some drawbacks have to be faced with such as timing- or noise performance issues. Different modulation and demodulation schemes will be proposed for ultra-wideband communications based on chaotic signals and Gaussian impulses furthermore the comparison of the different solutions and resulting noise performances will be discussed.

**About the Speaker**

Mr. Tamas Istvan Krebesz received his M.Sc. degree in Electrical Engineering from the Department of Measurement and Information Systems of the Budapest University of Technology and Economics in 2007. He is now working toward his Ph.D. with Prof. Geza Kolumban on the low-rate ultra-wideband telecommunications systems. His current research and professional interest include computer simulation of ultra-wideband radio, networking devices of embedded systems and industrial measurement automation.