



THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering

Seminar

**Generalized Orthogonal Sequences &
their Applications in Wireless Communications**

by

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Venue : Room 833, Ho Sin Hang Engineering Building
The Chinese University of Hong Kong

Abstract

In spread-spectrum and CDMA systems, radar and sonar ranging systems, global positioning systems, channel estimations, synchronization, system identification, hardware testing, and so on, in order to reduce or eliminate various interference, it is normally required to design a set of code sequences satisfying certain desirable properties, such as orthogonal sequences. In traditional orthogonal code sequences such as Walsh sequences, the orthogonality is destroyed whenever there is a relative shift between the code sequences. For generalized orthogonal code sequences, however, mutually orthogonality can be maintained within a designed shift zone, called orthogonal zone. In this talk, the concept of generalized orthogonality which in fact opens a new direction in code sequence design, is introduced and extended, and the recent advances in the design and analysis of generalized orthogonal code sequences are presented, followed by their typical applications in wireless communications.

Biography

Pingzhi Fan, PhD(U.K.), FIET, FCIE (<http://sist.swjtu.edu.cn/imc/pzfan/>). He is currently a professor and director of the institute of mobile communications, Southwest Jiaotong University, PRC, and a guest professor of Leeds University, UK (1997-), a guest professor Shanghai Jiaotong University (1999-). He was a recipient of the UK ORS Award (1992), and the NSFC Outstanding Young Scientist Award (1998).

He is currently the chair of IEEE Chengdu Section and the chair of IEEE VTS BS Chapter, and served as the IEEE Region 10 EXCOM member and MD Chair in 2007/08. He served as the general chair or TPC chair of a number of international conferences, such as CMC'10, WiCOM'10, IWSDA'09, ITW'06, SETA'06, ITST'06, VTC'05-Fall (TT), PDCAT'04 and IWSDA'01 etc. He also served as the guest editor-in-chief of the IEICE Trans on Fundamentals, the guest editor or editorial member of IEICE Trans on Info & Syst, Journal of High Performance Computing and Networking (Inderscience), the Journal Wireless Communications and Mobile Computing (Wiley), Chinese Journal of Electronics (CIE), Communications and Mobile Computing, and Journal of Radio Science (CIE), etc.

He is the author of over 350 research papers, including over 150 papers published in IEEE/IEE/IEICE Transactions/journals, and 8 books, including six books and edited books published by John Wiley & Sons Ltd, RSP, IEEE Press, Springer and Nova Science, respectively. He is also an inventor of 25 patents. His research interests include spread-spectrum and CDMA technology, information theory & coding, sequence design & applications, radio resource management, private mobile radio, etc.

**** ALL ARE WELCOME ****