Dear All,

INDIAN INSTITUTE OF SCIENCE

INSTITUTE COLLOQUIUM
(Electrical Sciences)

PROF. P. VIJAY KUMAR
Department of Electrical Communication Engineering

will deliver a lecture

on

LOW-CORRELATION SEQUENCES FOR CDMA

on Tuesday, October 7, 2008
at 4.00 pm in the Faculty Hall

THE DIRECTOR
will preside

All are cordially invited

Coffee/Tea: 5.00 pm
Venue: Reception Hall

Abstract

A measure of the correlation between two periodic sequences of complex numbers is the collection of inner products between the first sequence and cyclically-shifted versions of the second.   Sequences sets with low correlation values find application as signature sequences in code-division-multiple-access (CDMA) communication systems where they serve to distinguish the signals assigned to distinct users.   Other applications include signal synchronization, navigation, radar ranging, pseudorandom number generation and stream ciphers. This tutorial talk will present the speaker's personal perspective on the evolution of low-correlation sequence design for CDMA. Along the way, connections will be made with mathematical objects such as cyclic difference sets, finite fields and rings and algebraic curves, as well as with signal sets used in the Global Positioning System (GPS) and the 3rd generation (3G) cellular network.