# THE CHINESE UNIVERSITY OF HONG KONG
## Institute of Network Coding
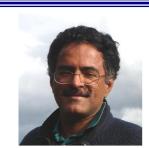## and
## Department of Information Engineering
### ~ Distinguished Lecture ~

**INC**

## Recent Results for Stochastic Models with Long-range Dependence and Heavy Tails
### by
### Prof. Venkat Anantharam
### University of California Berkeley

### Distinguished Lecture

**Date** : **23 February 2011 (Wednesday)**

**Time** : **2:00 - 3:00pm**

**Venue** : **Room 1009, William M. W. Mong Engineering Building**
**The Chinese University of Hong Kong**

## Abstract

We have recently been investigating the role of long-range dependence and heavy tails in the stochastic phenomena that drive the evolution of systems. Some general results in this area will be presented in this talk.

There are two major themes in this talk. One is a discussion of how stochastic approximation theory works in the presence of long-range dependence and heavy tails in the noise. A development parallel to the traditional theory in the usual short-range dependent case will be outlined. The main result of this work (joint work with Vivek Borkar) has the potential to be applied in many of the application scenarios where stochastic approximation algorithms are used, when long-range dependence and/or heavy tailed behavior is a concern.

The second main theme considered is when a function of a long-range dependent process is itself long-range dependent. A general theorem along these lines will be presented and discussed, together with some illustrative examples (to data compression and financial time series, and possibly others, time permitting) to suggest that such a result has broad applicability (joint work with Barlas Oguz).

## Biography

Venkat Anantharam received the B.Tech in Electronics in 1980 from the Indian Institute of Technology, Madras (IIT-M) and the M.A. and C.Phil degrees in Mathematics and the M.S. and Ph.D. degrees in Electrical Engineering in 1983, 1984, 1982 and 1986 respectively, from the University of California at Berkeley (UCB). From 1986 to 1994 he was on the faculty of the School of EE at Cornell University. From 1994 he has been on the faculty of the EECS department at UCB. Anantharam received the Philips India Medal and the President of India Gold Medal from IIT-M in 1980, and an NSF Presidential Young Investigator award during the period 1988 -1993. He a co-recipient of the 1998 Prize Paper award of the IEEE Information Theory Society (with S. Verdu) and a co-recipient of the 2000 Stephen O. Rice Prize Paper award of the IEEE Communications Theory Society (with N. Mckeown and J. Walrand). He received the Distinguished Alumnus Award from IIT-M in 2008. He is a Fellow of the IEEE.

### ~ ALL ARE WELCOME ~

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