



## Joint Chapter of Communications, Information Theory, and Signal Processing Societies

*Invites you to its Inaugural Event*

When: 19 November 2007 at 6:30pm Where: Room - ITB/A113, McMaster University

Featuring

*Prof. Simon Haykin*

University Professor, McMaster University  
as the Guest Speaker on the Subject

### “Cognitive Radio: Fundamental Issues and Research Challenges”

**Abstract:** Cognitive radio is a multidisciplinary field that is fast becoming a reality. In this lecture, I will address the following issues:

1. Is cognitive radio an evolution or revolution?
2. The implications of cognition
3. Pressing needs for cognitive radio
4. Fundamental issues in cognitive radio:
  - Radio scene analysis
  - Feedback from the receiver to the transmitter
  - Transmit power control and dynamic spectrum management
  - Multiple-user communications
5. I will conclude the lecture by identifying the research challenges in the design and development of cognitive radio networks.

**Speaker Bio:** Simon Haykin received his B.Sc (First Class Honours), Ph.D. and D.Sc, all in Electrical Engineering at the University of Birmingham in England. Presently he is a University Professor in the Department of Electrical and Computer Engineering at McMaster University, Canada. He is a Fellow of the IEEE and a Fellow of the Royal Society of Canada.

He is the recipient of an Honorary Doctorate of Technical Sciences from ETH, Zurich, Switzerland, and the first recipient of the Henry Booker Gold Medal from URSI, as well as many other prizes and awards. He is the author/coauthor of many books, including the classical books: Adaptive Filter Theory (Prentice Hall), Neural Networks (Prentice Hall), and Communication Systems (Wiley). His current research interests are focused on Cognitive Dynamic Systems with particular emphasis on the following:

1. The design of a new generation of adaptive hearing system for the hearing impaired (encompassing a cocktail part processor and neurocompesator), and the modeling of human communication in a noisy background.
2. Nonlinear filtering for state estimation.
3. Cognitive radar networks involving the use of inexpensive radar sensors.
4. Robust algorithms for transmit power control and spectrum management in cognitive radio.

**Agenda:** 6:30pm - 7:00pm: Refreshments and Introductions  
7:00pm - 8:00pm: The talk

(For further details, please contact Chapter chair Dr. Steve Hranilovic at [hranilovic@mcmaster.ca](mailto:hranilovic@mcmaster.ca))