CMRR

Center for Magnetic Recording Research
University of California, San Diego

11th Annual
Shannon Memorial Lecture

To commemorate the achievements of Claude Elwood Shannon an endowed lectureship has been established at the University of California, San Diego.

Each year an outstanding information theorist will be selected to present the Shannon Memorial Lecture. The date of the lecture will be on or about Shannon's birthday (April 30th).

A bust of Shannon, situated in the lobby of the Center for Magnetic Recording Research, bears a plaque with the following inscription:

Claude Elwood Shannon (1916-2001) Father of Information Theory

"His formulation of the mathematical theory of communication provided the foundation for the development of data storage and transmission systems that launched the information age"

— Dedicated October 16, 2001. Eugene Daub, sculptor.

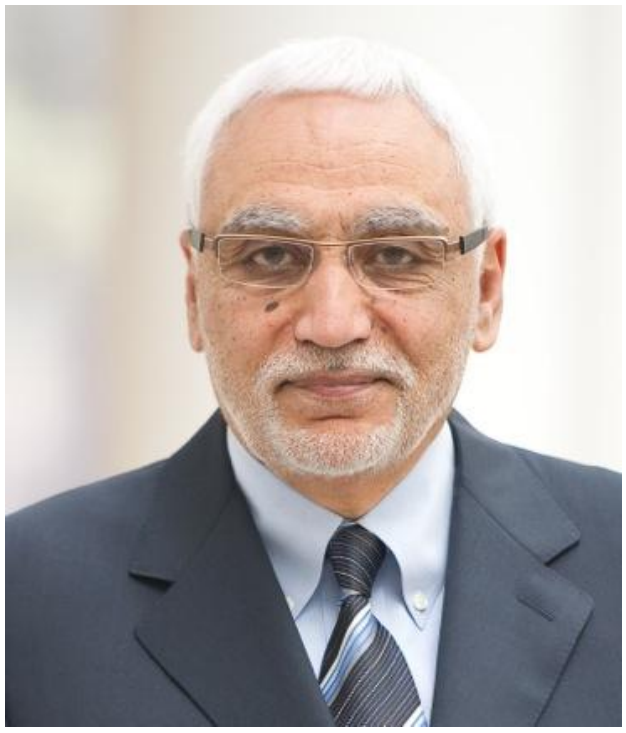
May 1, 2013

Prof. Abbas El Gamal

Stanford University
2012 Claude E. Shannon Award Recipient

will present a lecture entitled

Networks with Point-to-point Codes



Shannon's celebrated channel coding theorem established the fundamental limit on information flow over point-to-point channels and showed the existence of codes that achieve this limit. The ensuing 65 years have witnessed the development of ingenious practical codes that approach the Shannon limit. These codes are now widely used in communication networks and storage systems.

Results from network information theory, however, suggest that we may need to develop new types of codes to improve the achievable rates in networks with multiple sources and destinations and shared resources. How well do point-to-point codes perform over such networks relative to their information flow limits? Do we need to spend another 65 years (or more) to develop new "network codes"?

Professor El Gamal will argue that (random) point-to-point codes, when coupled with more sophisticated decoders than the ones in use today, can perform extremely well, and sometimes optimally, over several multiple access, broadcast, interference, and relay networks. In some other scenarios, we may need to develop new network codes.
This talk is based on joint work with Bernd Bandemer, David Tse, Francois Baccelli, and Young-Han Kim.

3:00 PM – Reception at CMRR
4:00 PM – Lecture
Calit2 Auditorium - Atkinson Hall
University of California, San Diego

CO-SPONSORED BY:

The Information Theory and Applications Center

WEBSITE: http://ita.ucsd.edu

California Institute of Telecommunications and Information Technology

WEBSITE: http://www.calit2.net/