IEEE SG WIE AG Technical Talk

Algebraic wireless coding: when algebraists meet engineers

by Dr. Frédérique Oggier, Asst. Prof. SPMS, NTU, Singapore

Date       Tuesday April 7th, 2009

Programme
18:00-19:00 Seminar  
19:00-20:00 Networking with refreshments and light snacks

Venue
Executive Seminar Room (S2.2 B2-53)  
School of Electrical and Electronic Engineering  
Nanyang Technological University  
639798 Singapore  
http://www.street-directory.com/ntu/

Note
For catering purposes, please RSVP your participation to Dr. Huang Dongyan, huang@i2r.a-star.edu.sg before Friday April 3rd, 2009.

Abstract
In this talk, I will present an overview of different coding scenarios appearing in wireless communication (such as coherent and differential MIMO channels, or wireless relay networks), for which coding techniques have been surprisingly derived from non-commutative algebra. I will show how the algebraic structure of some families of non-commutative algebras can provide powerful tools for code design.

Speakers' Biography

Dr. Frédérique Oggier completed her Ph.D. thesis in Mathematics at the Swiss Federal Institute of Technology, Lausanne, Switzerland (EPFL) in 2005. She was a postdoctoral visitor at the California Institute of Technology (CalTech) from 2005 till 2007, and at the Research Center on Information Security in Tokyo, Japan, in 2008, after which she joined NTU, Singapore, as an assistant professor. She is a recipient of the Singapore NRF Fellowship award. Her main research interests are in the applications of algebra to coding and security, mainly for wireless communications.