The Department of Mathematical Sciences presents

# Assistant Professor John Perry

University of Southern Mississippi

**Thursday, October 29, 2009**
**4 – 5 pm**
**Room 316 Braunstein Hall**

# *Groebner bases and the F5 algorithm*


Abstract:

Buchberger introduced Groebner bases in 1965, and they have since become a standard tool in algebraic computation. Efficient algorithms to compute Groebner bases are thus of paramount importance.

In 2002, Faugere described a new algorithm, F5. It has cracked several high-profile problems, but remains poorly understood. For example, (1) while F5 reduces significantly one bottleneck, it re-introduces another; and (2) no one knows whether or not it terminates for all inputs.

This talk describes Groebner bases: their structure; computation; and some applications. It then describes F5: how its structure is related to its efficiency; ways to mitigate its inefficiencies; and issues related to termination.


**Refreshments will be served at 3:30 pm**
**in the Faculty & Graduate Student Lounge**
**Room 840 of the Old Chemistry Building**

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