Algebra Seminar

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Thursday, July 19, 2012
1:00p.m., HH-3017

Constructive membership testing in classical groups

Abstract:
Computational matrix group theory has been the fastest growing area of computational group theory during the last 20 years. Efficient computations in finite matrix groups require that we are able to solve some basic tasks in groups generated by a finite set of matrices over a finite field. One of these tasks, known as the "Constructive Membership Problem", requires that we write an arbitrary element of a quasisimple matrix group as a product of its generators. I will present several approaches to solve this problem in different contexts. The implementations of the existing algorithms are written in Magma and I will also show how these implementations perform in practice.