Algebra Colloquium

SAGBI bases

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Abstract: One of the most important concepts in computational algebra is that of a Groebner basis for an ideal in a polynomial ring Pn = k[x1, . . . , xn]. (Here k is a field.) There are fast algorithms for finding Groebner bases and for computing with them. These algorithms have numerous application; in particular, they are at the core of many computer algebra systems. A SAGBI basis is an analogous notion for a subring R of Pn or of the Laurent polynomial ring Ln = k[x1 1 , . . . , x1 n]. In particular, one can perform computations in R quickly and efficiently, with a given SAGBI basis. The problem is that, unlike Groebner bases, SAGBI bases do not always exist. Finding necessary and sufficient conditions for the existence of a SAGBI basis, is an important open question in computational algebra. In this talk I will explain what SAGBI bases are, how they are used in carrying out algebraic computations and under what circumstances they are known to exist. 1

Thursday, November 8, 2007, 4:00 pm
Mathematics and Science Center: W201

Refreshments will be served at 3:30pm in the Department Lounge

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