

COLLOQUIUM

DEPARTMENT OF MATHEMATICS AND STATISTICS
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Formulas for the Bivariate Sparse Resultant

Abstract

The A -resultant, also called the sparse resultant, allows one to eliminate n variables from $n + 1$ polynomial equations supported on a finite set of monomials A . Hence, resultants can be quite useful in solving systems of polynomial equations and have applications to the implicitization of curves and surfaces. We give an explicit formula for computing the resultant of any sparse unmixed bivariate system with given support. We construct square matrices whose determinant is exactly the resultant. The construction of the formula is completely combinatorial, although the proof requires tools from algebra and algebraic geometry including toric varieties and resolutions over an exterior algebra.

372 Science and Engineering Building

Thursday, 3rd April, 2003

3:00 to 4:00 P.M.

**(Refreshment at 2:30 to 3:00 P.M. in Room 368,
Science and Engineering Building)**

About the speaker

Amit Khetan is finishing his doctorate in mathematics at the University of California at Berkeley under Professor Bernd Sturmfels. He will be at the University of Massachusetts starting in July with an NSF Postdoctoral Fellowship. Amit graduated from MIT in 1999 with a dual degree in Mathematics and Computer Science. He was raised in Michigan and has family currently in Troy.