UNIVERSITY OF DELAWARE
DEPARTMENT OF MATHEMATICAL SCIENCES
DISCRETE MATHEMATICS SEMINAR

Friday Oct. 31, 2003, 4:00pm, Room 436 Ewing Hall

On reducing an incidence matrix from finite geometry to Smith normal form

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An incidence matrix is a matrix of 0's and 1's with rows indexed by one set and columns indexed by another set. An entry of 1 indicates the corresponding elements are incident. We consider the incidence matrix of the set of points and the set of subspaces of another given dimension in a finite desarguesian geometry. Previously the Smith normal form was only known if the second set is the hyperplane set, or if the geometry is over a field of prime order. We obtain the result in the general case.

This is joint work with Peter Sin at University of Florida and Qing Xiang at University of Delaware.