Partial Matrices of Constant Rank.

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Abstract: In a partial matrix, some entries are specified and the remainder are independent indeterminates. A completion of a partial matrix (over a particular field F to which the indeterminate entries belong) is the matrix that arises from a choice of values from F for the indeterminate entries. The extent to which properties of completions are determined by the specified entries is a subject of wide interest. For example the problem of finding completions of low rank is (an interpretation of) the famous Netflix Challenge. In this talk we will consider partial matrices whose completions all have the same rank, with particular attention to the case of finite fields where some curious cases occur. This is joint work with James McTigue.