

# UVM MATHEMATICS COLLOQUIUM



## Extremal Problems on Bipartite Graphs

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Thursday, April 26, 2007  
3:30-4:30 PM  
Torrey 203

Refreshments to be served at 3:15 PM

Abstract:

In 1938, Erdős asked the following question: how many integers can one choose between 1 and  $n$  such that no one divides the product of two others? His solution resulted from reformulating the problem to the following question: how many edges can a bipartite graph contain without containing a quadrilateral? His result was a precursor to the field of Extremal Graph Theory which began a few years later with the celebrated result of Turán. The theory that has followed over the past sixty years has yet to answer a generalization of Erdős' reformulated question, known as the *Problem of Zarankiewicz*. The problem asks for the maximum number of edges in a bipartite graph not containing a copy of  $K_{s,t}$ . We survey some of the results in this area and introduce a variation on the problem of Zarankiewicz which we can completely solve.

sponsored by the Department of Mathematics & Statistics at the University of Vermont and the Department of Mathematics at St. Michael's College

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