

*Department of Mathematics,  
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# Math 269 - Combinatorics Seminar

**Dr. Michael Tait**

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## On the Turán number of theta graphs

**Abstract:**

The theta graph  $\Theta_{k,t}$  consists of two vertices with  $t$  internally disjoint paths of length  $k$  between them. Since  $\Theta_{k,2}$  is a cycle of length  $2k$ , the study of the Turán number of this graph includes the notorious even-cycle problem. We show that for fixed  $k$  and large  $t$ , a graph without a  $\Theta_{k,t}$  contains at most  $c_k t^{1-1/k} n^{1+1/k}$  edges, and we use graphs constructed via random polynomials to show that this is sharp up to the constant  $c_k$  when  $k$  is odd.

Host: Jacques Verstraete

**Thursday, May 17, 2018**

**3:00 PM**

**AP&M 6218**

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