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Craig M. Timmons* (ctimmons@ucsd.edu). *Ordered Turán Problems.*

In this talk we will discuss some ordered Turán problems for bipartite graphs. Let G be an n -vertex graph with vertex set $\{1, 2, \dots, n\}$ and view the vertices of G as being ordered in the obvious way. A *zig-zag* $K_{s,t}$ is a $K_{s,t}$ whose parts $A = \{n_1 < n_2 < \dots < n_s\}$ and $B = \{m_1 < m_2 < \dots < m_t\}$ satisfy the condition $n_s < m_1$. A *zig-zag* C_{2k} is an even cycle with $2k$ vertices where the vertices in one part of the bipartition precede all of those vertices in the other part. We will present upper bounds on the Turán numbers of zig-zag complete bipartite graphs and even cycles and compare these bounds to the ordinary Turán numbers of such graphs. We will also present constructions of zig-zag C_4 -free graphs with many edges. (Received September 18, 2012)