# Combinatorics Seminar

Wednesday, April 4, 2012

3:00 pm in Hume 331

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## Degree sum condition for k-ordered hamiltonian connected graphs

**ABSTRACT**

Let $G$ be a graph on $n$ vertices. If for any ordered set of vertices $S = \{v_1, v_2, \ldots, v_k\}$, that is, the vertices in $S$ appear in order of the sequence $v_1, v_2, \ldots, v_k$, there exists a $v_1 - v_k$ (hamiltonian) path containing $S$ in the given order, then $G$ is $k$-ordered (hamiltonian) connected. Let $\{u_1, u_2\}$ and $\{u_3, u_4\}$ be any distinct pairs of nonadjacent vertices. We define $\sigma_4' = \min\{d_G(u_1) + d_G(u_2) + d_G(u_3) + d_G(u_4)\}$ when $G \neq K_n$ and $G \neq K_n - e$, otherwise set $\sigma_4'(G) = \infty$. In this talk we will present some new sufficient conditions on the $k$-ordered connectivity based on $\sigma_4'$. The main result is as follows: If $\sigma_4'(G) \geq 2n + 3k - 10$ $(k \geq 4)$, then $G$ is $k$-ordered hamiltonian connected. Our outcomes generalize several related results known before.