

**Meeting:** 1002, Pittsburgh, Pennsylvania, SS 9A, Special Session on Multivariate Hypergeometric Functions: Combinatorial and Algebro-Geometric Aspects

1002-13-144      **William N Traves\*** (traves@usna.edu), Mathematics Department, U.S. Naval Academy, Prebble Hall, Mail Stop 9E, Annapolis, MD 21402. *A differential operators approach to rank-jumps in hypergeometric systems.* Preliminary report.

Rank jumps have important consequences for solutions to systems of hypergeometric differential equations. Matusevich, Cattani, D'Andrea and Dickenstein have all explored the combinatorial and algebraic implications of rank jumps and linked them to the Cohen-Macaulayness of the underlying toric variety. Matusevich's work suggested a connection between rank jumps and the structure of the ring of differential operators on the toric variety. I will discuss these connections in this talk. The long-term goal of this research is to find a differential-geometric interpretation of the Cohen-Macaulay property for toric varieties. (Received September 14, 2004)