1080-05-305 **Alexandra Ovetsky Fradkin*** (aovetsky@gmail.com) and **Paul D. Seymour**. *The k edge-disjoint paths problem in digraphs with bounded independence number.*

In 1980, Fortune, Hopcroft, and Wyllie showed that the following algorithmic problem (k-EDP) is NP-complete with $k = 2$:

k Edge-Disjoint Paths (k-EDP)

Instance: A digraph G, and k pairs $(s_1, t_1), ..., (s_k, t_k)$ of vertices of G.

Question: Do there exist directed paths $P_1, ..., P_k$ of G, mutually edge-disjoint, such that P_i is from s_i to t_i for $i = 1, ..., k$?

In this talk we will present a polynomial time algorithm to solve k-EDP for fixed k in digraphs with bounded independence number. (Received January 30, 2012)