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Bryan L Williams* (bryan.williams@hamptonu.edu), 544-3A Coral Court, Newport News, VA 23606. *Large Circuit Pairs in Matroids.*

Scott Smith conjectured in 1979 that two distinct longest cycles of a k -connected graph meet in at least k vertices when $k \geq 2$. This conjecture is known to be true for $k \leq 10$. Only the case $k \leq 6$ appears in the literature, however. Reid and Wu generalized Smith's conjecture to k -connected matroids by considering largest circuits. The case $k = 2$ of the matroid conjecture follows from a result of Seymour. In addition, McMurray, Reid, Sheppardson, Wei, and Wu established an extension of the matroid conjecture for $k = 2$ and proved it for cographic matroids when $k \leq 6$. In his Ph.D. dissertation, McMurray established the matroid conjecture for matroids of circumference four. I establish Reid and Wu's conjecture for several classes of matroids which include those that have connectivity three, circumference five, and spanning circuits. For this talk I will focus on Reid and Wu's conjecture for $k = 3$ along with some structured results for $k = 4$. This has been joint work with Manoel Lemos, James Reid, and Haidong Wu. (Received September 19, 2006)