“Intersections” of largest circuits in matroids

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Abstract

Scott Smith conjectured in 1979 that distinct longest cycles of a \( k \)-connected graph meet in at least \( k \) vertices when \( k \geq 2 \). This conjecture is still open. Reid and Wu generalized the conjecture to matroids by considering largest circuits. A result of Seymour that appears in a paper of Ding, Oporowski, and Oxley establishes the matroid conjecture for the case \( k = 2 \). Results that generalize the conjecture for \( k = 2 \) were given by McMurray, Reid, Wei, and Wu. Here we consider the case where the circuits are almost largest circuits in the matroid. This is joint work with Bryan Williams.