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*Non-separating cocircuits in binary matroids.*

A cocircuit of a connected binary matroid is *non-separating* provided its deletion originates a connected minor. Edmonds conjectured that each element of a 3-connected binary matroid belongs to at least two non-separating cocircuits. Moreover, a 3-connected binary matroid is graphic if and only if each element belongs to exactly two non-separating cocircuits. These conjectures were proved by Bixby and Cunningham. For connected binary matroids, the picture is completely different.

Kelmans and Seymour independently established that a simple and cosimple connected binary matroid has at least one non-separating cocircuit. McNulty and Wu improved this lower bound to four. Lemos and Melo proved that the non-separating cocircuits of such matroid are the non-separating cocircuits of few 3-connected minors avoiding some elements.

In this talk, we discuss results about non-separating cocircuits in 3-connected binary matroids with emphasis on these that avoids a fixed set. (Received January 17, 2012)