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**Manoel J M S Lemos\*** (manoel@dmat.ufpe.br), Rua Exp. Ailson Simões, 121, Iputinga, Recife, Pernambuco 50721-470, Brazil. *Non-separating cocircuits in binary matroids.*

A cocircuit  $C^*$  of a connected binary matroid  $M$  is *non-separating* provided  $M \setminus C^*$  is connected. Edmonds conjectured that every 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.

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. To characterize the matroids that attain this bound one can use a result of Lemos and another of Lemos and Melo. Lemos and Melo's theorem describes all 3-connected binary matroids without a non-separating cocircuit avoiding a 2-element set. Lemos's result says that a 3-connected binary matroid  $M$  has at least  $r(M) - 1$  non-separating cocircuits avoiding a fixed element. Inspired by this theorem, Wu made the following conjecture: a 3-connected binary matroid  $M$  is graphic if and only if each element avoids exactly  $r(M) - 1$  non-separating cocircuits. This conjecture has been proved by Lemos. (Received January 7, 2008)