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*Circumference and Pathwidth of Highly Connected Graphs.*

Etienne Birmele proved that every graph with circumference  $t$  has treewidth at most  $t-1$ . Under the additional assumption of 2-connectivity, results of J. Nešetřil and P. Ossona de Mendez show that such graphs have bounded pathwidth, which is a qualitatively stronger conclusion. We make a factor-2 improvement to their bound. Birmele's theorem was extended by Birmele, Bondy and Reed who showed that every graph without  $k$  disjoint cycles of length at least  $t$  has bounded treewidth (as a function of  $k$  and  $t$ ). Under the additional assumption of  $(k+1)$ -connectivity, we prove that such graphs have bounded pathwidth. Moreover, examples show that  $(k+1)$ -connectivity is required to reach this conclusion. These results suggest the following general question: for which values of  $k$  and  $H$  does every  $k$ -connected  $H$ -minor-free graph have bounded pathwidth? We discuss this question and provide a few observations. (Received September 17, 2013)