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**Guoli Ding\*** ([ding@math.lsu.edu](mailto:ding@math.lsu.edu)). *A chain theorem for  $3^+$ -connected graphs.*

A 3-connected graph is  $3^+$ -connected if it has no 3-separation that separates a “large” fan or  $K_{3,n}$  from the rest of the graph. We show that, except for  $K_4$ , every  $3^+$ -connected graph has a  $3^+$ -connected proper minor that is at most two edges away from the original graph. Applications of this result will also be discussed. (Received January 16, 2012)