1112-05-201 **Z. Füredi**, **A. Kostochka*** (kostochk@math.uiuc.edu) and **J. Verstraëte**. *Stability in the Erdős–Gallai Theorem on cycles and paths.* Preliminary report.

The Erdős-Gallai Theorem states that for $k \geq 2$, every graph of average degree more than $k-2$ contains a k-vertex path. This result is a consequence of a stronger result of Kopylov: if $t \geq 2$, $k \in \{2t+1, 2t+2\}$, $n \geq \frac{5t-3}{2}$, and G is an n-vertex 2-connected graph with at least $h(n,k,t) = \binom{k-t}{2} + t(n-k+t)$ edges, then G contains a cycle of length at least k unless $G = H_{n,k,t} := K_n - E(K_{n-t})$. We prove a stability version of the Erdős-Gallai Theorem: For all $n \geq 3t > 3$, and $k \in \{2t+1, 2t+2\}$, every n-vertex 2-connected graph G with $e(G) > h(n,k,t-1)$ either contains a cycle of length at least k or contains a set of t vertices whose removal gives a star forest. In particular, if $k = 2t+1 \neq 7$, then $G \subseteq H_{n,k,t}$. The lower bound $e(G) > h(n,k,t-1)$ in these results is tight. (Received August 03, 2015)