1162-05-69 **Eva Czabarka** (czabarka@math.sc.edu), **Inne Singgih** (inne.singgih@uc.edu) and **Laszlo A. Szekely*** (szekely@math.sc.edu). *On the diameter of k-colorable graphs.*

Erdős, Pach, Pollack and Tuza [*J. Combin. Theory* **B 47** (1989), 279–285] conjectured that the diameter of a K_{2r}-free connected graph of order n and minimum degree $\delta \geq 2$ is at most $\frac{2(r-1)(3r+2)}{(2r^2-1)} \cdot \frac{n}{\delta} + O(1)$ for every $r \geq 2$, if δ is a multiple of $(r-1)(3r+2)$. For every $r > 1$ and $\delta \geq 2(r-1)$, we create K_{2r}-free graphs with minimum degree δ and diameter $\frac{(6r-5)n}{(2r-1)\delta+2r-3} + O(1)$, which are counterexamples to the conjecture for every $r > 1$ and $\delta > 2(r-1)(3r+2)(2r-3)$. The rest of the paper proves positive results under a stronger hypothesis, k-colorability, instead of being K_{k+1}-free. We show that the diameter of connected k-colorable graphs with minimum degree $\geq \delta$ and order n is at most $\left(3 - \frac{1}{k-1}\right) \frac{n}{\delta} + O(1)$, while for $k = 3$, it is at most $\frac{57n}{23\delta} + O(1)$. (Received August 23, 2020)