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Jessalyn Bolkema* (jessalyn.bolkema@huskers.unl.edu). *Non-real zeros of derivatives of a class of real entire functions.* Preliminary report.

In 1943, G. Polya conjectured that the number of non-real zeros of the k th derivative of a real entire function of order greater than 2, with finitely many non-real zeros, tends to infinity as $k \rightarrow \infty$. This was verified in 2005 by A. Eremenko and W. Bergweiler. A natural extension is whether the number of non-real zeros of the k th derivative increases monotonically as $k \rightarrow \infty$. We show that the number of non-real zeros of $f^{(k)}(z)$ increases monotonically with differentiation when $f(z) = z^m e^{K(z)}$ where $m \in \mathbb{N}$ and K is in one of several special classes of real polynomials. (Received September 08, 2012)