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Kevin G Hare*, kghare@uwaterloo.ca, and **Michael J Mossinghoff**. *Sporadic Reinhardt polygons*.

Let n be a positive integer, not a power of two. A *Reinhardt polygon* is a convex n -gon that is optimal in three different geometric optimization problems: it has maximal perimeter relative to its diameter, maximal width relative to its diameter, and maximal width relative to its perimeter. For almost all n , there are many Reinhardt polygons with n sides, and many of them exhibit a particular periodic structure. While these periodic polygons are well understood, for certain values of n , additional Reinhardt polygons exist that do not possess this structured form. We call these polygons *sporadic*. We will discuss these sporadic Reinhardt polygons. (Received September 10, 2012)