1123-52-81 **Andrew Suk*** (`suk@uic.edu`), Andrew Suk, 322 Science and Engineering Offices (M/C 249), 851 S. Morgan Street, Chicago, IL 60607. *On the Erdos-Szekeres convex polygon problem.*

Let $ES(n)$ be the smallest integer such that any set of $ES(n)$ points in the plane in general position contains n points in convex position. In their seminal 1935 paper, Erdos and Szekeres showed that $ES(n) \leq \binom{2n-4}{n-2} + 1 = 4^{n-o(n)}$. In 1960, they showed that $ES(n) \geq 2^{n-2} + 1$ and conjectured this to be optimal. Despite the efforts of many researchers, no improvement in the order of magnitude has been made on the upper bound over the last 81 years. In this talk, we will sketch a proof showing that $ES(n) = 2^{n+o(n)}$. We will also discuss several related open problems including a higher dimensional variant, and on mutually avoiding sets. (Received August 18, 2016)