962-30-756 **Stephanie P. Edwards*** (sedwards@bemidjistate.edu), Department of Mathematics & Computer Science, Bemidji State University, 1500 Birchmont Drive NE, Bemidji, MN 56601, and **Simon Hellerstein** (hellerst@math.wisc.edu). *Non-real Zeros of Derivatives of Real Entire Functions and the Pólya - Wiman Conjectures.* Preliminary report.

A function f is in the class V_{2p} iff $f(z) = e^{-az^{2p+2}}g(z)$ where $a \geq 0$ and g is a constant multiple of a real entire function of genus $\leq 2p+1$ with only real zeros. The class U_{2p} is defined as follows: $U_0 = V_0, \quad U_{2p} = V_{2p} - V_{2p-2}$. Functions in the class U^*_{2p} are represented as $g(z) = c(z)f(z)$ where $f \in U_{2p}$ and c is a real polynomial with no real zeros. Every real entire function g, of finite order with at most finitely many non-real zeros satisfies $g \in U^*_{2p}$ for a unique p. We show, for a subclass of $f \in U_{2p}$, necessary and sufficient conditions for f'' to have exactly $2p$ non-real zeros. For a subclass of U^*_{2p} we show that if f' has only real zeros, then f'' has exactly $2p$ non-real zeros. For $f \in U^*_{2p}$ we show that $2p$ is a lower bound for the number of non-real zeros of $f^{(k)}$ for $k \geq 2$. (Received September 25, 2000)