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**Ian Wagner\*** ([ian.c.wagner@vanderbilt.edu](mailto:ian.c.wagner@vanderbilt.edu)). *Laguerre-Pólya type functions with applications in combinatorics and number theory.*

We define a new class of functions, connected to the classical Laguerre-Pólya class, which we call the shifted Laguerre-Pólya class, and prove that a function being in this class is equivalent to the Taylor coefficients, once shifted, being a degree  $d$  multiplier sequence for every  $d$ , which is equivalent to shifted coefficients satisfying all of the higher Tóran inequalities. This mirrors a classical result of Pólya and Schur. We further show some order derivative of a function in this class satisfies each extended Laguerre inequality. Recent work of Griffin, Ono, Rolen, and Zagier show that the Riemann Xi function and partition numbers are in this class. Finally, we discuss some old and new conjectures about iterated inequalities for functions in this class. One, for example, implies the eventual infinite-log-concavity of the Taylor coefficients of a function in this class. (Received September 01, 2021)