1100-33-326 Yuk J Leung* (yleung@math.udel.edu), Department of Mathematical Sciences, Newark, DE 19716. Clustering of complex zeros of special functions. Preliminary report.

It is known that the complex zeros of certain special functions lie close to the trajectories of a quadratic differential (or anticlinals as called by Hille). If the special function is a solution of a second order differential equation of the form y''(z) + Q(z)y(z) = 0, then the quadratic differential is defined by $Q(z)dz^2$. For various classes of hypergeometric polynomials generated with varying parameters, the work of Martinez-Finkelshten, Rakhmanov, Duren and many others showed that the complex zeros accumulate along the trajectories of a quadratic differential as the degree of the polynomial goes to infinity. We will examine how the classical work of Hille and Schiffer can be applied to obtain similar conclusions. (Received February 10, 2014)