1138-00-44 **Seung-Yeop Lee** and **Meng Yang*** (mengyang@mail.usf.edu). *Discontinuity in the asymptotic behavior of planar orthogonal polynomials under a perturbation of the Gaussian weight.*

We consider the orthogonal polynomials, $\{P_n(z)\}_{n=0,1,\cdots}$, with respect to the measure

$$|z-a|^{2c}e^{-N|z|^2}dA(z)$$

supported over the whole complex plane, where $a > 0$, $N > 0$ and $c > -1$. We look at the scaling limit where n and N tend to infinity while keeping their ratio, n/N, fixed. The support of the limiting zero distribution is given in terms of certain "limiting potential-theoretic skeleton" of the unit disk. We show that, as we vary c, both the skeleton and the asymptotic distribution of the zeros behave discontinuously at $c = 0$. The smooth interpolation of the discontinuity is obtained by the further scaling of $c = e^{-\eta N}$ in terms of the parameter $\eta \in [0, \infty)$. (Received January 23, 2018)