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Roderick Wong* (mawong@cityu.edu.hk) and **Zhitao Wen.** *Asymptotics of Orthogonal Polynomials Associated with a Generalized Freud Weight.* Preliminary report.

In this talk, we discuss the asymptotic behavior of the monic polynomials orthogonal with respect to the weight function $w(x) = |x|^{2\alpha} e^{-(x^4+tx^2)}$, where $\alpha > -\frac{1}{2}$ and t is any real number. We consider this problem in three separate cases: (i) $c > -2$, (ii) $c = -2$, and (iii) $c < -2$, where $c := tN^{-1/2}$ is a constant, $N = n + \alpha$ and n is the degree of the polynomial. In the first two cases, the support of the associated equilibrium measure μ_t is a single interval, whereas in the third case the support of μ_t consists of two intervals. In each case, globally uniform asymptotic expansions are obtained in several different regions. These regions together cover the whole complex plane. (Received September 19, 2017)