Sheng-Chi Liu* (scliu@math.tamu.edu), Department of Mathematics, Texas A&M University, College Station, TX 77843-3368, and Riad Masri and Matt Young. Subconvexity and equidistribution of Heegner points in the level aspect.

Let $q$ be a prime and $-D < -4$ be an odd fundamental discriminant such that $q$ splits in $\mathbb{Q}(\sqrt{-D})$. For $f$ a weight zero Hecke-Maass newform of level $q$ and $\Theta_{\chi}$ the weight one theta series of level $D$ corresponding to an ideal class group character $\chi$ of $\mathbb{Q}(\sqrt{-D})$, we establish a hybrid subconvexity bound for $L(f \times \Theta_{\chi}, s)$ at $s = 1/2$ when $q \asymp D^{\eta}$ for $0 < \eta < 1$. With this circle of ideas, we show that the Heegner points of level $q$ and discriminant $D$ become equidistributed, in a natural sense, as $q, D \to \infty$ for $q \leq D^{1/20 - \varepsilon}$. Our approach to these problems is connected to estimating the $L^2$-restriction norm of a Maass form of large level $q$ when restricted to the collection of Heegner points. We furthermore establish bounds for quadratic twists of Hecke-Maass $L$-functions with simultaneously large level and large quadratic twist, and hybrid bounds for quadratic Dirichlet $L$-functions in certain ranges. This is joint work with Riad Masri and Matt Young. (Received July 30, 2012)