1155-11-132 **Jesse Thorner*** (jesse.thorner@gmail.com). *Extremal behavior of class numbers.*

Fix integers $n \geq 3$ and $\ell \geq 2$. Assuming Artin's holomorphy conjecture and the generalized Riemann hypothesis (GRH), Duke proved that there exist number fields K of arbitrarily large discriminant such that $[K : \mathbb{Q}] = n$ and the magnitude of the order of the class group of K is as large as provably possible. Cho proved that Duke's result holds under the strong Artin conjecture without appealing to GRH. We prove that Duke's result holds under a weak form of the Dedekind conjecture. Additionally, we prove that each of these class groups must have nontrivial bounds on their ℓ-torsion that are as strong as GRH predicts. Each number field K that we ensure has large class group with small ℓ-torsion is totally real, and the Galois group of the Galois closure of K (over $\mathbb{Q}$) is isomorphic to the full symmetric group S_n. (Received January 07, 2020)