1016-11-115   **S. Ramachandran*** (`sramacha@cpsc.ucalgary.ca`), Department of Computer Science, 2500 University Dr NW, Calgary, Alberta T2N 1N4, Canada, and **M. J. Jacobson** and **H. C. Williams**. *Numerical Results on Class Groups of Imaginary Quadratic Fields.*

In order to increase the range of numerical evidence supporting various heuristics and asymptotic conjectures, we have computed the class number and class group structure of all imaginary quadratic fields with discriminant Δ for $0 < |\Delta| < 10^{11}$. Our algorithm makes use of the Extended Riemann Hypothesis and therefore our results are dependant on its correctness. In order to remove this reliance on an unproved hypothesis, a novel verification algorithm based on the Eichler Selberg Trace Formula was used. In this talk, we will present the methods used for this computation, as well as the results of our algorithms. We will remark on specific evidence that was found pertaining to a number of heuristics. In particular, we present data which supports some of the Cohen-Lenstra heuristics, Littlewood's bounds on $L(1, \chi)$, and Bach's bound on the maximum norm of the prime ideals required to generate the class group. (Received February 07, 2006)