1077-20-919   **James B Wilson*** (`jwilson@math.colostate.edu`), Department of Mathematics, Colorado State University, 101 Weber Building, Fort Collins, CO 80523. *Automorphisms and isomorphism of finite p-groups.* Preliminary report.

The study of isomorphisms of finite groups has two largely unrelated thrusts: one to determine structural properties that demonstrate when groups are non-isomorphic, and the other to produce efficient tools to prove when groups are isomorphic. Both problems appear most difficult for nilpotent groups of class 2. We introduce conclusive isomorphism invariants and polynomial-time isomorphism tests for a super-exponentially sized family of isomorphism types of p-groups of class 2. These results depend in part on independent work with P. Brooksbank, M. Lewis, and L. Ronyai. (Received September 14, 2011)