Multiplicative-type subgroups of $J_0(N)$

Vinayak Vatsal (`vatsal@math.ubc.ca`)
University of British Columbia
Department of Mathematics
Vancouver, BC V6T 1Z2
Canada

Abstract. We will show that, under certain hypotheses, the Shimura subgroup is the maximal multiplicative-type subgroup of $J_0(N)$. This generalizes a theorem of Mazur, although our methods are completely different. As a corollary, we prove cases of a conjecture on the existence of certain canonical modular parametrizations of elliptic curves.