COMPUTING PERIODS OF CUSP FORMS AND MODULAR ELLIPTIC CURVES

JOHN E. CREMONA

Abstract. We present an improved method of computing the periods of a newform for $\Gamma_0(N)$, which converges faster than the methods previously used. We also present some shortcuts that speed up the process of computing all modular elliptic curves of a given conductor N. As an application of these methods, we report on the extension of the systematic computation of modular elliptic curves to all conductors up to 5077.