1056-11-1529   **Ekin Ozman*** (`ozman@math.wisc.edu`). *Points on Quadratic Twists of $X_0(N)$.*

Let $X^d(N)$ be the modular curve described as qudratic twist of $X_0(N)$ by a quadratic field $K = \mathbb{Q}(\sqrt{d})$ and w_N. Rational points on this twist are K-rational points of $X_0(N)$ that are fixed by σ composed with w_N where σ is the generator of $Gal(K/\mathbb{Q})$. Unlike $X_0(N)$, it's not immediate to say that there are points (global or local) on $X^d(N)$. Given (N, d, p) we give necessary and sufficient conditions for existence of a $\mathbb{Q}_p$-rational point on $X^d(N)$, answering the following question of Ellenberg:

For which d and N there exists points on $X^d(N)$ for every completion of $\mathbb{Q}$? (Received September 22, 2009)