Points on $X_0^+(N)$ over quadratic fields (joint work with F. Momose)

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Momose (1987) studied the rational points on the modular curve $X_0^+(N)$ for a composite number N. He showed that the rational points on $X_0^+(N)$ consist of cusps and CM points under certain conditions on a prime divisor p of N. But $p = 37$ was excluded. For 37 is peculiar because $X_0(37)$ is a hyperelliptic curve and w_{37} is not the hyperelliptic involution. We show that the rational points on $X_0^+(37M)$ consist of cusps and CM points. We also show that the K-rational points on $X_0^+(N)$ consist of cusps and CM points for a quadratic field K under certain conditions (both $p = 37$ and $p \neq 37$ allowed).